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CONTENTS AND DIGEST

Responsibility of Nation, State and County for Rural Sanitation. W. S. Rankin, M.D., Raleigh, N. C.....697

Size and nature of the problem of rural sanitation. Coordinate responsibility for rural sanitation.

Discussed by Drs. Schereschewsky, Geier, Hemenway, Hurty, Hayne and Rankin.

Pneumonia at a Base Hospital: Observations in One Thousand One Hundred Cases at Camp Pike, Ark. Arthur A. Small, M.D., Camp Pike, Little Rock, Ark.....700

Statistics of the pneumonia cases at Camp Pike. Type of case and symptoms. Case reports. Empyema. Incidence of complications and difficulties of diagnosis.

Epidemic of Streptococcus Pneumonia and Empyema at Camp Dodge, Iowa. Joseph L. Miller, M.D., and Frank B. Lusk, M.D., Camp Dodge, Iowa...702

First onset of lobar pneumonia and its types. Comparative susceptibility of colored and white troops. The use of the roentgen ray in diagnosis. Great increase in empyema cases and their mortality. Complications. Treatment of streptococcus empyema and pneumonia. Groups of cases.

Pathology of the Epidemic Streptococcal Bronchopneumonia in the Army Camps. W. G. MacCallum, M.D., Baltimore 704

Account of the epidemic at Camp Dodge. Conditions there as regards measles prevalence. Etiology of the epidemic. Showings from cultures. Pathologic anatomy.

Papers of Drs. Small, Miller and Lusk, and MacCallum discussed by Drs. Welch, Litchfield, Russell, Cole, Bliss, Dick, Rosenow and Franing.

The Principles of Thyroid Surgery. C. H. Mayo, M.D., Rochester, Minn. 710

Mortality of thyroid surgery before improvement in technic. Importance of the thyroid

(Continued on next page)

MEDICAL MOBILIZATION AND THE WAR 751

MILITARY MEDICINE AND SURGERY

Neurocirculatory Myasthenia: A Problem of the Substandard Soldier. Andrew MacFarlane, M.D., Camp Gordon, Atlanta, Ga.....730

The Transport Splints of the American Army. Robert B. Osgood, M.D., Washington, D. C.....734

A Recent Surgical Service at the Ambulance Des Alliés. John J. Moorhead, M.D., France 738

Operation for Empyema: A Preliminary Report Covering an Observation on One Hundred and Fifty-Five Cases. Hugh McKenna, M.D., Camp Pike, Little Rock, Ark.....743

Report of a Severe Case of Epidemic Meningitis Treated by the Combined Intravenous and Intraspinal Administration of Antimeningococcus Serum. T. P. Caplinger, M.D., Camp Logan, Houston, Texas.....745

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Memorandum issued by British War Office Committee; intrathecal injections.

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WOUNDS OF THE CHEST
WOUNDS OF THE JOINTS
ABDOMINAL WOUNDS
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Dr. Jos. A. Blake, Sir Anthony A. Bowlby, Bart., Dr. Geo. W. Crile, Dr. Wm. S. Halsted, Dr. V. G. Heiser, Dr. R. Tait McKenzie.

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Cotton-process ether; anesthesia during dressings.

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See Page 3

CONTENTS AND DIGEST— Concluded

gland. The work of Plummer and Kendall. The thyroid as a factor of metabolism. Dangers of operation.

Goiter in the Southeast. Edward G. Jones, M.D., Atlanta, Ga.....712

Study of 407 patients. Classification of cases. Incidence. Possible extrathyroidal causes of symptoms. Pelvic disease. Relation between appearance of goiter and appearance of symptoms. Maximal resection.

Temporary Loss of Voice Following Thyroidectomy. Donald Guthrie, M.D., Sayre, Pa.....715

Causes of temporary loss of voice after thyroidectomy. Avoidance of trauma to the inferior recurrent laryngeal nerves. Trauma of the trachea and larynx. Need of skilled anesthetists in thyroidectomy.

Papers of Drs. Mayo, Jones and Guthrie discussed by Drs. Down, Lane, Porter, Dugan, Stewart, Magee, Sloan, Mayo, Guthrie and Jones.

Hypophysial Tumors Through the Intradural Approach. A. W. Adson, M.D., Rochester, Minn.....721

Sporotrichosis Resembling Tuberculosis Cutis: Report of a Case. J. S. Eisenstaedt, M D., Chicago.....726

Discussed by Drs. Harris, Zurawski, Sutton, Ravogli and Eisenstaedt.

CLINICAL NOTES, SUGGESTIONS AND NEW INSTRUMENTS

Rupture of Cesarean Scar During Pregnancy: Report of a Case. Carl R. Howson, M.D., Redlands, Calif...728

Streptococcic Meningitis in the Mother and Child in Utero: Report of a Case. G. B. Kramer, M.D., and William B. Wright, Jr., M.D., St. Paul.....729

Report of a Case of Anaphylactic Shock, with Failure to Desensitize by Intraspinal Administration of Serum. Lewis Fox Frissell, M.D., New York 729

A Case of Syphilitic Reinfection. Joseph Spangenthal, M.D., Buffalo.....730

Simple Method of Making Permanent Platinum Loops for Laboratory Workers. A. J. Canning, M.D., Manila, P. I.....730

NEW AND NONOFFICIAL REMEDIES

Description of Articles Accepted by the Council on Pharmacy and Chemistry 745

Chloramine-T—Dichloramine-T.

EDITORIALS

Uniformity in Mortality Statistics..746

Importance in the comparison of conditions and results.

The Science of Nutrition and the Army 746

Success of the division of food and nutrition in the Medical Department of the Army.

Theories Regarding Meat Poisoning..747

Ptomains, botulism, and infection of food with paratyphoid bacilli.

The Elimination of Zinc and Tin...748

A question of interest so long as metals find their way into the body in everyday life.

CURRENT COMMENT

The New Selective Service Law and Physicians.....748

Ample supply of medical men for the needs of the Army and Navy.

The Calcium Requirement of Man..749

Value of milk in the administration of calcium.

A Medical Division in the Provost Marshal-General's Office.....749

Recognition of the importance of the physical examination of registrants.

The Blood Sugar in Diabetes.....750

Possible evidence for combined sugar in diabetic blood.

Medical Members of Local and District Appeal Boards.....750

Crippling of many appeal boards by resignations of medical members to enter the Medical Corps of the Army.

MEDICAL NEWS 759

MARRIAGES 764

DEATHS 764

PROPAGANDA FOR REFORM 765

Two Mail-Order Frauds.

CORRESPONDENCE 766

Rejections of Registrants at Camp for Physical Causes.

"Reconstruction and Rehabilitation of the Tuberculous Soldier."

Knowledge of the Communication of Diseases by Mosquito Bites.

QUERIES AND MINOR NOTES 768

Utilization of Fat Introduced Parenterally—Method of Absorption of Mercury by Inunction.

Calcium Chlorid Antifreeze Mixture.

What Is Best Way to Keep Static Machines Dry?

MEDICAL EDUCATION AND STATE BOARDS OF REGISTRATION

Coming Examinations — Medical Students in the United Kingdom in 1918—Georgia April Examination — Arizona January Examination 768

BOOK NOTICES 769

MEDICOLEGAL

Hospital and Drunkenness of Employee Under Workman's Compensation Act — Privileged Communications 769

SOCIETY PROCEEDINGS 770

Coming Meetings.

CURRENT MEDICAL LITERATURE

American Medical Journals

Giant Cells of Bone Marrow.....770

New Pathology of Syphilis — Degenerative Chorea with Serology of General Paresis—Antenatal Syphilis — Coagulo Reaction in Syphilis—Toxicity of Preparations of Arsphenamin 771

Intravenous Injections of Sodium Iodid in Syphilis—Treatment of Tuberculosis—Treatment and Mistreatment of Tuberculosis—Wassermann and Bruck Reaction in Tuberculosis—Tuberculosis and Wassermann Reaction 772

Use of Fascial Transplants in War Surgery—Ventriculography Following Injection of Air Into Cerebral Ventricles—Total Excision of Both Pectoral Muscles in Breast Cancer—Fibrin Paper as Hemostatic Agent—Thick Farina in Pyloric Stenosis.....773

Ductless Glands and Disease—Carbo Animalis in Diarrheas of Childhood—Tolerance and Immunity — Pneumonia and Meningitis — Relation of Peptone to Biologic Reactions 774

Study of Retention in Korsakoff Psychosis—Study of Mental Content of Epilepsy...775

Foreign Medical Journals

Treatment of Asthma by Peptone—Report of Gassed Cases 775

Gastro-Intestinal Toxemia as Cause of Nephritis—War Deafness and Vestibular Tests—Gunshot Fractures of Femur.....776

Fracture of Humerus Treated by Splints—General Staphylococcus Infection—Disability from Hemianopsia—Ear Disturbances in Aviation—Resumption of Self-Support by War Cripples—Pulmonary Spirochetosis—Prophylaxis of Acute Contagious Diseases 777

Meningitis in Infants—Combination of Bradycardia, Low Blood Pressure and Cyanosis of Hands and Feet — Abnormal Attitudes from Defective Regeneration of Nerve—Prophylaxis of Tuberculosis in the Italian Army—Wound of Inferior Cervical Ganglion —The Provisional Prosthesis.....778

The Heart — Tracheocele — Reflex Symptoms with Epilepsy—Serotherapy of Meningitis—War Psychoneuroses — Fallacies in Cancer Statistics — Abdominal Wounds — Mercury Protects Against Malaria—False Abdominal Wounds 779

Three-Day Fever and Trench Fever—Paralysis Without Organic Injury of Spinal Cord—Early Suture for Factitious Abscesses—Reapers' Keratitis—The Finer Structure of the Neuroglia — The Small Heart of the Tuberculous—Progress of Science in Italy—Epinephrin in Treatment of Children — Tremor in Children.....780

Nocturnal Asthma—Intra-Uterine Fractures—Empyema of Gallbladder—Obstetric Lacerations—Urethroplasty—Prophylaxis of Dengue—Popliteal Aneurysm—Early Fatal Syphilitic Meningitis — Heart Weakness—Inadequate Nose Breathing as Factor in Tuberculosis 781

Importance of Permeability of the Nose in Treatment of Pulmonary Tuberculosis—Recording the Movements of Nystagmus — Tuberculous Abscesses in the Ribs and Costal Cartilages—Malignant Tumors of the Jaws—Intermittent Paraplegia—The Hookworm Campaign—Venereal Disease in Brazil —Constipation—Typhus in Portugal....782

Gallstones — Regulation of Prostitution — Municipal Decree for Prophylaxis of Tuberculosis—Diabetes Insipidus in Infant—The Morphin Mouse-Tail Reaction—Open Puncture in Pleurisy—Acetylsalicylic Acid Modifies Reaction for Sugar—Congenital Heart Defect—Multiple Psychogenous Skin Defects 783

Comparative Mortality of the Sexes—Loss of Greater Omentum—Duodenal Catheterization for Infants—River and Lake Bathing in Winter—Operative Treatment of Anuria—Ferment Action and Succinic Acid—Protein Requirements—Parathyroid Glands in Rabbits 784

TONICS AND SEDATIVES—BOOKS RECEIVED..Adv. Page 22

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RESPONSIBILITY OF NATION, STATE AND COUNTY FOR RURAL SANITATION *

W. S. RANKIN, M.D.

RALEIGH, N. C.

When this paper was written, no appropriate action had been taken to retard or prevent the rapid disorganization of public health agencies incidental to our national plan of medical preparedness. At that time, it seemed almost futile to discuss any phase of public health administration. With reliable assurance that this matter of paramount importance, to wit, the maintenance of public health agencies during the war, would be properly dealt with in Washington during the past week, I have selected a subject of national scope and importance, once the maintenance of our public health agencies is assured.

My subject, the "Responsibility of Nation, State and County for Rural Sanitation," seems to be logically divisible into three sections: (1) the size and nature of the problem of rural sanitation; (2) the relative responsibility of nation, state and county for rural sanitation, and (3) the coordinate responsibility of nation, state and county for rural sanitation.

SIZE AND NATURE OF THE PROBLEM OF RURAL SANITATION

In size, the problem of rural sanitation has to do with 60,000,000 people, comprising 53 per cent. of our population, and 99 per cent. of the area of this country. It is the larger part of the general problem of sanitation.

In nature, rural sanitation is primary and fundamental to sanitation in general; in the natural order, the country and then the city. The city is made of wood and brick and stone and men and ideas—the built and the builders—all brought in from the country. The vital current flows from the country to the city. The urban settlement, village or metropolis, the little pond or big lake, is quantitatively and qualitatively what flows into it from the woods and fields. Purify the stream it its source, and the rural influx will not muddy the water for the health department, but will make it clear.

One more word with respect to the nature of the rural health problem: It concerns a population that both in knowledge and in means is least able to care for itself and, therefore, most in need of our consideration.

RELATIVE RESPONSIBILITY FOR RURAL SANITATION

The recent invoice of the vital resources of this country, showing 33 per cent. of the healthiest age group unfit for military service, one third of our force eliminated from the struggle before they could reach the trenches, is enough at this critical period of our history to raise the question of governmental responsibility. In this question of responsibility, unfortunately, like most questions of responsibility, there are several responsible agencies or divisions of government concerned. There are three divisions of government naturally interested in, and with means and opportunity to improve, and, therefore, responsibe for, rural sanitation. These three divisions of government are our primary and constitutional governments, our national, state and county governments. Here, then, the question of general responsibility shifts to one of relative responsibility. Which one of the three branches of government is most concerned, most responsible for rural sanitation, and, therefore, which one of the three divisions of the government should assume leadership in solving our rural sanitation problems?

In the first place, rural sanitation is a matter of profound interest not to one or a few, but to all of the states—it is a problem of national scope. Methods of solving this problem for one state are applicable to many, and the experiences of each state would be helpful and should be available for all the states through some central governmental agency or clearing house. The problem is not an intrastate but an interstate problem, a national problem from many angles.

Then again, the present international crisis makes the physical man power not of one or a few counties or states, but of the entire nation, a matter of national and fundamental importance. County and state lines have become almost imperceptible; our governmental powers have become united and solidified to the point at which the national government is stronger in influence, means and authority than ever; and with this greater strength goes greater relative responsibility.

Lastly, it may be said that the three governments are like partners in a firm. Their common property is the rural citizen. The national government is the largest stockholder. It owns sixty times more stock than the average state government, and three thousand times more stock than the average county government. The national partner is supposedly the best equipped in both means and understanding. If seniority, larger interests, and ability are factors in determining responsibility for leadership, then the question of greater relative responsibility rests with the national partner. The answer to this question will be the adoption and the inauguration by the

* Chairman's address, read before the Section on Preventive Medicine and Public Health at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

federal government of a definite, comprehensive and adequate plan of rural sanitation. Such a plan will from the very outset recognize the principles of coordinate responsibility for rural sanitation.

COORDINATE RESPONSIBILITY FOR RURAL SANITATION

This principle of coordinate responsibility recognizes the interests and the obligations of the three partners in caring for their common property—the rural citizen. This means that (1) there must be a plan of rural sanitation satisfactory to all three interests—nation, state and county, and (2) all three interests must help, contribute of their energy and means, in carrying the plan into effect.

It is not sufficient, it is not right, for one of the partners to tell or to demonstrate to the other how to take care of the common interest. Demonstration is all right so far as it goes. It doesn't go far. And then it is a bit egotistic and distant; not a friendly helper. The show-you-how-to-do-it type of mind is good in a way, but the let-me-help-you spirit is your real friend. The present policy of the federal government with reference to rural sanitation is, to use the exact terms, "for demonstration purposes." The states and counties, the majority of the people of this country, are not satisfied and are never going to be satisfied with that half-hearted policy. Measured by its interests, the United States government is not fulfilling its obligations in its present demonstration policy for dealing with the problem of rural sanitation.

Fortunately for those of us who believe that this principle of coordinate responsibility means cooperative help on the part of all three governments concerned, we have with us the state public health agencies, recorded in strong resolutions adopted at the Conference of Secretaries of State and Provincial Boards of Health in June, 1917, and also two departments of the United States government, the Department of Commerce and the Department of Agriculture, the only two departments of the federal government, the Department of the Treasury excepted, that have to do with rural living conditions. The Departments of Commerce and Agriculture have been instrumental in securing legislation based on what is generally spoken of as the federal aid extension principle, which recognizes and puts into active service for the people this principle of coordinate responsibility of the three governments for rural welfare. The federal good roads act, under the Department of Commerce, and the Smith-Hughes and Smith-Lever acts for agricultural education, under the Department of Agriculture, are of inestimable value not only to the rural citizens of our country, but also to the entire country. This form of legislation, briefly, provides a federal appropriation to be equitably apportioned among the states, each state to receive its apportionment when the state appropriates a like amount. The combined federal and state appropriation is again appropriated to the counties of a state when the county appropriates one dollar for two received from the federal and state governments, and the combined fund, the contribution of the three partners, one third from each, is spent on a plan of work approved by all three participants.

If similar legislation were enacted to care for the problem of rural sanitation, the federal government would appropriate, say, from $1,000,000 to $2,000,000 annually to be apportioned to the various states and territories in accordance with the rural population and the square mile area of each state and territory, the state apportionment to be available to the state when the state appropriated a like amount to that received from the federal government; and the combined fund would be apportioned to those counties of the state that would appropriate one dollar for two of the combined federal and state apportionment. The total fund then available for the county would be expended on a plan of rural sanitation submitted by the county to the state board of health, approved by the state board of health, and then submitted to and approved by the public health agency of the United States government. Such a plan would make available, almost at once, from $50,000 to $100,000 for county health work for the average state. Each state board of health would become a clearing house of information for all the counties, and the federal health agency would become a clearing house for rural sanitation for all the states. The question of coordinate responsibility of the governments for rural sanitation would be wisely, justly and satisfactorily answered.

ABSTRACT OF DISCUSSION

Dr. J. W. Schereschewsky, Washington, D. C.: There is no question about the great value of rural sanitation. The plan Dr. Rankin has proposed is a practical one, if it is possible to secure the necessary legislation. We have been endeavoring to increase the appropriations given by Congress for this purpose. The general statements made with regard to rural sanitation by the Appropriations Committee are to the effect that they conceive the function of the federal government in this respect to be that of a demonstrating agency, so that demonstrations of rural sanitation in various counties to show the great value of the work should be of sufficient educational influence to create a desire on the part of the people of the state to have this work carried on continuously. Of course, if from the purely legislative standpoint a proposition is made to finance the rural portion of the United States in health work, then, municipalities and larger centers might ask that the federal government contribute to the support of public health work of any kind all over the country. That is the general attitude which has been adopted by Congress. Now, as one who is intensely interested in this problem of rural sanitation, who appreciates as well as any one else that in the municipality we have the opportunity for mass action, for collective action, whereas in rural centers sanitary principles must be applied to a greater extent by the individual, it is evident that there is some difference in the situation when comparing the rural population with the municipal population. Again, the larger centers have very much larger financial returns from taxes, thus placing much larger sums at the disposal of the municipality of which a certain amount can be set aside for public health purposes. In the rural communities this is not the case. The principle of cooperative sanitation in rural communities is susceptible of legislative defense. However, to bring this about, it is necessary to convince Congress that such action is desirable on the part of the federal government. As a public health proposition, as a means of extending public health work, such a proposal as this should appeal from the legislative standpoint. A desire for such public health work must come from the people themselves. Government agencies are especially constituted to carry out the will of the people, and when the people direct them to do a thing, then they do it. For that reason all government agencies must, to a certain extent, rely on direction from the people for the execution of certain measures, although it is clearly their function, by educational and demonstration methods, to point out the desirability and the ways to improve health protection.

The United States Public Health Service has this great system of cooperation, so far as rural agricultural methods are concerned, with the states because there has been a definite demand on the part of agriculturalists for such action, and they have been able to make representations to Congress

that such line of action was not only desirable from the economic view point, but that it had behind it the united demand of all persons from those rural sections. In similar fashion, to make progress along public health lines, if it is the desire of the people that public health measures shall be extended, then it is necessary for the people to come to the federal government with that demand. As soon as they make that demand I am convinced that the necessary funds will be forthcoming to permit the extension of public health work in any direction which it seems proper that it should take.

DR. OTTO P. GEIER, Cincinnati: I wish that in closing the discussion Dr. Rankin would say just how he has conceived of making this a permanent factor in national public health work. I concede that we might, by interesting Congress, secure such appropriations. Under their present status the U. S. Public Health Service comes into communities only by invitation. The plan proposed would cost the government tremendous sums of money. If such subsidies would be expended in cities as well as in rural communities (for I doubt if you could make such legislation stand unless it did include cities as well as communities), we would then have the basis of a forceful federal supervision of all state health work. Would not this plan call for a new constitutional arrangement since the Public Health Service would actually impose its will in health matters on the various states? As I understand it, all experimental health work and surveys, etc., are carried on in the states on invitation of the communities where the experimental work is to be done. In other words, the Public Health Service cannot initiate health work within the borders of the respective states.

DR. H. B. HEMENWAY, Springfield, Ill.: In England the Local Government Board is a national board. It exerts an influence on the local administration in this way: Every division of the state is supposed to have a health administration, and under certain conditions, practically those of agreement, the Local Government Board provides one-half of the expense for the salary of a competent health officer, but on condition that no man shall be appointed who does not have the approval of the Local Government Board, and that no man shall be removed from service without the consent of the Local Government Board. That is to insure the appointment of competent men. Arrangements may be terminated by the local health authority or by the Local Government Board at any time when they are satisfied that conditions are unsatisfactory. That scheme might possibly be worked out in this country.

DR. JOHN N. HURTY, Indianapolis: It is most desirable from certain points of view to appropriate money for the purpose of protecting public health, but we must go slow in mixing up government and state and county, and assembling and combining our appropriations for that work. It is a matter that ought to be considered thoroughly. Dr. Rankin considers county and rural sanitation as the same. Are they? Generally they are, but here is a county that has a large city in it; that city belongs to the state. Its entire powers are derived from the state. It cannot exist without the state. The same way with the county. So that that statement could be challenged, for not in all instances would we find county and country sanitation or hygiene to be exactly the same. We will have to take into account other considerations, otherwise we might be lost on that point. We must take a broad view from every point imaginable and not from only one.

DR. JAMES A. HAYNE, Columbia, S. C.: The idea that the government should do this county health work does not mean that it should come down into our counties or our states and actually build privies and make sewer connections and perform the other functions of public health service, but at present what we need is education. Even doctors need education. I find it hard in my state to teach the doctors the fundamental principles of public health—harder than to teach the general public. The doctor has the impression that when he gets his degree from some institution he is an expert in public health. He decides whether it is necessary to report disease or not. What we want from the government is an educational campaign in our counties, and that costs a lot of money. We are at present spending in some of our small counties $9,200 on purely educational work, counties of only thirty or forty thousand inhabitants. Educational work does not mean writing pamphlets that are sent to the community in batches. Nobody reads them. Nobody pays any attention to them. We are interested in public health work, and we feel all the people should be interested in it, but they are not. Even the Council of National Defense does not recognize that public health work is a necessity. What is necessary is the same thing that is done by the farm demonstrator. He goes out in the field and talks with the farmer and gets the farmer's point of view and tries to turn the farmer's point of view to the right point of view. That is what the demonstrators have to do in the country, and that costs money. It means a house-to-house visit. It means catching the farmer when you can and catching the farmer's wife and all his children through the schools, and so forth, and teaching them. After a while they will learn, but it takes an awful long time and an awful lot of money. Our states are poor in public health spirit. For instance, I raised $112,000 in my county for Red Cross work. I found it impossible to get that same county to employ a two thousand dollar whole-time health officer because, they said, they were too poor. The same state that raised $25,000,000 for Liberty Bonds refused to make an appropriation of $20,000 for public health work because they were not educated up to it. How did we sell Liberty Bonds? Why did these people subscribe to the Red Cross? By a combined educational effort in every state and county. That is what we want the government to do.

DR. W. S. RANKIN, Raleigh, N. C.: I do not want to be understood as saying anything to discourage the U. S. Public Health Service in its demonstration work in rural sanitation. This work should be extended. However, we should recognize that the demonstration principle as followed by that service is very limited as an administrative measure as compared with the principle of governmental cooperation advocated in my paper. Just what the net result of the demonstration work in rural sanitation of the Public Health Service has amounted to I do not know. It would be interesting to know in how many counties this work had been carried on and how many of these counties had been influenced by this work in establishing permanent health departments. The question of including cities in the proposal set forth in my paper has been raised. There are two reasons for not proposing the inclusion of cities at present in this principle of governmental cooperation: (1) We have a precedent for rural work, none for urban work; (2) cities are more able financially to take care of themselves than rural districts. The per capita wealth of cities is from five to ten times greater than the per capita wealth of rural districts. The distribution of public funds by the government to those that most need help seems to be pretty well established. The question of centralization has been raised. According to the plan proposed, the initiative would always rest with the county. The county would come to the state with its plan of work. If the state approved the plan, the plan would then go to the Federal agency for consideration and approval. When approved by all three participants, the work would begin. Dr. Schereschewsky raises the question of the responsibility of governmental agencies for initiating legislation. Every county health officer, every city health officer here knows that he would be very far back in his work, comparatively speaking, if he had not undertaken to interest his people, the public, in what was needed in his field—if he himself had not taken the initiative. Dr. Schereschewsky knows that no successful state health agency nor successful city health agency sits still and waits for the public to take the initiative and leadership in the development of a health department. And if this holds true for states and cities, why should it not hold true for the Federal Government?

Illegitimacy in Norway.—National recognition of the rights of illegitimate children is for the first time afforded by the laws of Norway, according to a bulletin of the Children's Bureau. The state holds both parents equally and continuously responsible for these children in the matter of maintenance, training and education.

PNEUMONIA AT A BASE HOSPITAL

OBSERVATIONS IN ONE THOUSAND ONE HUNDRED CASES AT CAMP PIKE, ARK.*

ARTHUR A. SMALL, M.D. (Chicago)
Major, M. R. C., U. S. Army; Chief of Medical Service
CAMP PIKE, LITTLE ROCK, ARK.

Since the opening of the base hospital at Camp Pike, Ark., in September, 1917, to April 27, 1918, there were admitted to the medical wards 1,285 pneumonia patients; 857 of these had lobar pneumonia and 428 of these had bronchopneumonia.

The majority of the cases in September and October, sixty-nine in number, were of the lobar pneumonia type, which we are used to seeing in civil practice, and I felt that the pneumonia question in military service was to be one of great interest and great hope, because of the comparatively low mortality in these months. Unfortunately, this opinion was rapidly changed, and in the following months the change was one which caused great anxiety and apprehension.

During the month of September there were no deaths from either bronchopneumonia or lobar pneumonia, and during the month of October, there were also no deaths from bronchopneumonia; but there were six deaths with a 10 per cent. mortality from lobar pneumonia. The cases observed in September and October were typical of the lobar pneumonia described in textbooks. There were the sudden onset with chill, high temperature, rusty sputum and well marked areas of consolidation. The cases of bronchopneumonia did not differ in any marked way and were essentially the same as those seen in civil practice.

In November there were 170 cases of lobar pneumonia and seventy-five of bronchopneumonia; in December there were 225 of lobar pneumonia and 139 of bronchopneumonia. The mortality of these two months of the lobar pneumonia cases was, respectively, 32 and 29 per cent., and of bronchopneumonia, 4 and 29 per cent. In January the mortality of lobar pneumonia was 29 per cent. and of bronchopneumonia 53 per cent. The percentages of deaths gradually declined, and up to April 27, 1918, the total percentage of deaths in lobar pneumonia was 28. The total percentage of mortality in bronchopneumonia was 26, and from both bronchopneumonia and lobar pneumonia up to April 27, 1918, it was 26.07 per cent.

It is difficult to give a definite reason for the difference in the mortality in the later months compared with that of the first two months. It is possible, first, that the large number of cases of bronchopneumonia that followed measles may have been a potent factor. Up to March 22, 1918, 33 per cent. of all pneumonias were those that followed measles. There were in the hospital up to the middle of April, 1918, 3,100 cases of measles. Secondly, in wards in which there have been a great number of patients with respiratory diseases, the streptococci undoubtedly gain in virulence by their passage through the human host. Thirdly, because of the large number of patients in a ward who are infected with streptococci, it must undoubtedly follow that the patients in that ward are receiving a larger number of organisms than they otherwise would.

* Read before the Section on Practice of Medicine at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

Many of the cases of bronchopneumonia have begun with the most trivial subjective symptoms and with practically no objective signs. These men have been sent to the hospital because they have been coughing for a few days and have had a rise of temperature with a rather severe headache in the majority of cases. Many of these patients, on their entrance to the hospital, say that they are not feeling ill and should not have been taken from their duty.

The physical signs are trivial and slight. In the majority of cases a few fine, moist râles are heard, usually at the back and near the angle of the scapula. This may occur on one or both sides. On percussion this area shows a slight amount of dulness. These are often the only physical signs present, and there are no subjective complaints of any kind, except a slight cough that is nonproductive. Examination made of the same patient from twelve to twenty-four hours afterward will often show a disappearance of these objective signs. The same patient examined in another twelve to twenty-four hours will show in the same area well marked consolidation with an increased number of moist râles and often bronchovesicular or tubular breathing. The fever is usually not high, rarely going above 103. The pulse is not very rapid and does not become so during the course of the disease.

Unusual and peculiar as it may seem, the large majority of these patients do not present a respiratory distress of any kind. There is practically no dyspnea until dissolution approaches.

Cyanosis, in our series of cases, is very rare and has been seen in only about 2 per cent. of the fatal cases.

At first there is no expectoration; it gradually becomes more free, but has always been moderate in amount. In practically all cases, the sputum is mucopurulent, though at times it is streaked with blood. In this connection it is interesting to note that at times the amount of blood in the sputum has been so extensive that it might easily have been mistaken for hemoptysis due to tuberculosis of the lung, but on postmortem examination, tuberculosis was proved not to exist. In none of the bronchopneumonia cases has the sputum been rusty in color, nor has it had the gummy consistency seen in lobar pneumonia.

In contradistinction to this mild type of bronchopneumonia, we have had a most malignant and fulminating type, which is illustrated by Case 1:

Case 1.—Private M., who was drilling in the afternoon, complained of feeling slightly ill. He entered the hospital at 7 o'clock that evening and died next morning at 6. On examination, he presented practically no signs of pneumonia, except a few moist râles which were distributed over both lungs and not confined or isolated to any particular part of the lung. He did, however, show the following signs of meningitis: headache, depression, hyperesthesia and stiff neck. There was no rash, no Kernig sign, no Babinski reflex, no Oppenheim sign and no Gordon reflex. The diagnosis of bronchopneumonia was not made before death on account of the trivial findings. The postmortem examination disclosed a small number of bronchopneumonia patches in the left lung and in the lower lobe of the right lung. There were no signs of meningitis. There was an acute and well marked lymphadenitis of the bronchial lymph nodes. There was a cloudy swelling of the liver and kidney and an acute splenitis.

I have had to change in a very decided way my previous ideas of the occurrence of bronchopneumonia. We have had many cases in which there

were signs of bronchopneumonia only in one lung, and we have had some cases in which there was a bronchopneumonia in one lung and a lobar pneumonia in the other lung.

In case 2, both lobar and bronchopneumonia occurred:

CASE 2.—Private B., admitted to the base hospital, March 26, 1918, had become suddenly ill the day before, with pain over the lower chest and abdomen, and with sore throat, cough and mucopurulent expectoration. There were definite signs of consolidation of the entire left lung and many coarse, moist râles all over the right lung, with a few small areas of tubular breathing. The patient was evidently very ill; his temperature on entering the hospital was 104, and remained at about this point until the day of his death, when it dropped to 101.8. The respiration on entrance was 38; on some days it was as low as 28, and did not go above 44 until shortly before he died, when it went to 46. The highest pulse rate was 122, and the lowest was 86, on the fourth day of his illness. The patient was very toxic, and death occurred on the fifth day after admittance; sputum culture revealed the Type IV pneumococcus and the *Streptococcus hemolyticus*. Necropsy disclosed lobar pneumonia of the entire left side; serofibrinous pleuritis of the left side, with fluid enmeshed in the fibrin; bronchopneumonia of the right side, most marked in the lower lobe; bilateral purulent bronchitis; cloudy swelling of the liver and kidneys, and the spleen not enlarged but soft.

Empyema has occurred in 9.002 per cent. of the total number of pneumonia cases. It has been a most difficult matter to detect the presence of fluid, and because of this difficulty, exploratory puncture is made in every case in which the physical or constitutional signs indicate fluid or pus. There is a standing order in the pneumonia wards that roentgenoscopy be performed in all cases of pneumonia in which there is the slightest suspicion of fluid, and in every case of pneumonia at the expiration of fourteen days.

In some cases it is impossible to detect the formation of pus. This is especially true when an isolated abscess cavity is formed by adhesions between the pericardium and the visceral and parietal layers of the pleura near the median line. In other cases the pus is contained in a fibrinous exudate, which acts not unlike a sponge, and confines the pus and limits its border as definitely as if it were surrounded by a coffer-dam.

At times, the formation of pus is so slow that its presence is almost impossible to discover, for in many of these cases it simply plasters itself over the surface of the lung in a layer that is about one-half inch thick, so that the signs of the consolidated lung beneath it are transmitted through this layer, and there are no signs of the presence of fluid. In a recent case, fluid had developed in what to us was a unique position. It enveloped and entirely covered the top of the right lung, fitting over it and displacing it down to the third rib in front and the fourth rib behind, capping it as an extinguisher does a candle. The upper lobe was pushed downward, forward and inward and accounted for the increased tympany, which was found on percussion over and to the right of the sternum. The fluid was held in this peculiar and elevated position because of the dense adhesions, which existed in the whole of the pleural cavity below it. The formation of this fluid was extremely rapid, for over the area occupied by the fluid and twenty-four hours before death, there were all the signs of a consolidated lung with well defined tubular breathing. The breath sounds gradually became fainter and a tympany developed near the right margin of the sternum from the third rib downward. These were the only signs that were found, and their significance was misinterpreted. On the other hand, there were cases in which empyema developed with a tremendous rapidity. Fortunately, in the majority of these cases all the signs were well marked; and when the other clinical signs were not well marked, our most helpful sign was the displacement of the apex beat. The care of both of these types of empyema, from the surgical standpoint, will be described by Major Hugh McKenna, M. R. C.

Of the sputum examinations that have been made, 48 per cent. of the pneumonias have been due to the pneumococcus, of which there have been 21 per cent. of Type I, 34 per cent. of Type II, and 45 per cent. of Type IV. Streptococci have been found in 46 per cent. of the total number of cases. Of these, 46 per cent. were nonhemolytic and 54 per cent. were hemolytic.

In Ward 1, twenty-three blood cultures have been taken from patients in whom the clinical diagnosis was pneumonia. The blood cultures were taken as soon after admission as possible. The time of cultures relative to that of the prodromal symptoms ranged from three to seven days. Of the twenty-three cases examined, six gave blood cultures showing the *Streptococcus hemolyticus*. In none of these positive cases was the diagnosis of empyema made at the time or prior to the taking of the blood culture. In one case a blood culture was reported positive; but neither clinical examination, the exploratory needle nor the roentgen ray revealed the presence of fluid in the pleural cavity. A few days later, however, the exploratory needle revealed fluid which contained the same streptococcus as was secured from the blood. Three patients with positive streptococcus findings in the blood developed empyema. Two of the cases developed in the pleural cavity, the fluid containing the *Streptococcus hemolyticus*. In all of these cases the blood culture was taken not later than seven days after the onset of the disease, and in none of them was the patient in a serious or moribund condition when the culture was taken.

The incidence of complications has been somewhat peculiar. During the months of October and November, 90 per cent. of all pneumonia patients had herpes of some kind, whereas in the following months and up to the present time, herpes is practically unknown.

Many patients have been received at the hospital with the diagnosis of meningitis and have been considered as having meningitis until a spinal puncture proved the error. On entering, there would be no clinical signs of pneumonia, but there would be many of the signs of meningismus, that is, a stiff neck, Kernig sign, severe headache, mental hebetude and hyperesthesia; but on lumbar puncture, the spinal fluid was found to be negative in every way. In a few hours, well marked signs of pneumonia would develop, and in those that have come to necropsy, there has not been found any objective sign of meningitis.

A large number of cases, for some hours, simulated appendicitis; and only after waiting for clinical signs to develop has it been possible to show that these cases were pneumonia and not appendicitis.

Jaundice has not been infrequent and, in the negroes suffering from pneumonia, has taken place in 10 per cent. of the cases. About 5 per cent. of all pneumonia patients have had fibrinous pericarditis. There have been three cases of purulent pericarditis.

Pneumothorax has occurred five times, on one occasion accompanied by pus in the pleural cavity, but this was complicated with chronic tuberculosis. Two cases in the service were diagnosed as pneumothorax and were demonstrated as such to various members of the medical staff, because of the remarkable coin sound that was present. Both of these cases came to necropsy, and it was shown that pneumothorax did not exist and that the coin sound was due to a distended colon. The coin sound in both of these cases was present up to and over the second interspace of the left side and throughout the whole of the axillary space.

Otitis media has occurred frequently, and in many cases has been followed or accompanied by mastoiditis. Strange as it may seem, mastoiditis has occurred and been found postmortem without having given any objective or subjective signs during life.

PERCENTAGE OF INCIDENCE OF PNEUMONIA TO THE TOTAL NUMBER OF MEN IN THE CANTONMENT

Month	Per Cent.
October, 1917	0.31
November, 1917	0.78
December, 1917	1.10
January, 1918	0.73
February, 1918	0.34
March, 1918	0.52
Average	0.65

The percentage of the incidence of pneumonia to the total number of men in the cantonment for the months from October to March is rather interesting, and is given in the accompanying table. It is hard to say definitely what is the cause of the high incidence of pneumonia at this camp. For the first four months, the physical condition of the men was very poor; a tremendous amount of dust was present; many of the men had the habit of going to bed in their wet underclothes without properly covering themselves, and sudden changes of temperature took place. Undoubtedly by this exposure they were made more susceptible to respiratory infections. The large number of men suffering from measles predisposed them to infections of the respiratory tract. In addition, practically in every one of these men there were enlarged tonsils. The teeth and gums also were in a very bad condition. The factors mentioned above, namely, measles, the physical condition of the men, the large amount of dust, and carelessness in barracks, together with the exposure and fatigue, must all be considered as factors in the incidence of the different pneumonias.

SUMMARY

Probably the three most potent factors in the predisposition to pneumonia in this camp were:

1. The large number of men suffering from measles.
2. The large amount of dust.
3. Carelessness of the men in their barracks, giving rise to what were at first minor respiratory infections.

These three factors all give rise to coryza, laryngitis, tracheitis or bronchitis and so cause conditions predisposing to infections that ultimately may result in pneumonia.

Importance of a Sanitary Code.—As a basis for the activities of the health authorities, a sanitary code or set of rules and ordinances or regulations should be promulgated. These regulations should be prepared with extreme care and permit of intelligent application and enforcement.—P. A. Surg. Paul Preble, *Public Health Reports*, March 2, 1917.

EPIDEMIC OF STREPTOCOCCUS PNEUMONIA AND EMPYEMA AT CAMP DODGE, IOWA*

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From Sept. 20, 1917, until May 10, 1918, 675 patients, whose cases were diagnosed as lobar pneumonia, have entered the base hospital at Camp Dodge, Iowa. This does not include a limited number of cases diagnosed clinically as bronchopneumonia. At necropsy, however, not infrequently it was found that, in reality, we were dealing with a confluent bronchopneumonia which was localized chiefly or entirely in a single lobe. Inasmuch, however, as these cases, if necropsy had not been performed, would have been placed on record as lobar pneumonia, they have been so considered in this discussion.

Although measles was quite prevalent throughout the entire winter, pneumonia as a complication was very infrequent; only since about May 1 has pneumonia as a complication of measles reached any considerable number, and this period is not connected with the epidemic of streptococcus pneumonia, which at the time mentioned was on the wane.

The ordinary clinical lobar pneumonia, due to the pneumococcus, prevailed until about March 20; then, abruptly the streptococcus type predominated, with a very great increase in the incidence of the disease. From September 20 until March 20, which marks the period of ordinary lobar pneumonia, 276 cases were treated; from March 20 to May 10, 400 patients with pneumonia entered the hospital.

A very mild type of pneumonia prevailed during the early autumn, with a mortality in the first hundred of 7 per cent. The onset was usually severe and evidence of intense toxemia prevailed, but the course of the disease was short. In the first eighty-eight cases terminating by crisis, the duration in seven was 2 days; eleven, 3 days; thirteen, 4 days; thirteen, 5 days; eighteen, 6 days; nine, 7 days; ten, 8 days; two, 9 days, and five, 10 days or more. In this series of 276 cases, empyema was present in thirty-one, or 11.2 per cent. Even in these early cases, however, there was a marked tendency to multiple pus foci and the mortality from empyema was high. In those of this series where the type of pneumococcus was determined, Type I was found in 22.8 per cent.; Type II, typical and atypical combined, 46.8 per cent.; Type III, 7.6 per cent., and Type IV, 22.8 per cent.

The colored troops were much more susceptible than the white, 116 being colored and 159 white, and one American Indian. The colored troops did not enter camp until we had received forty white soldiers with pneumonia. Allowing for this, it is seen that there was about an equal number of the two races, although the colored troops made up only about one sixth of the total strength of the camp. The mortality among the colored troops was also somewhat higher—12.9 per cent., with 9 per cent. among the white troops,

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the total average morality being 11.2 per cent. Empyema occurred in 8.6 per cent. of the cases of pneumonia in the colored troops; in the white troops, 13 per cent. It was much more fatal among the former, 70 per cent. dying as compared to 57 per cent. among the latter. This is in striking contrast to the results observed in the streptococcus empyemas. The mortality in the thirty-one empyemas was 61.3 per cent., which is accounted for by the marked tendency to multilocular pus collections. This feature, so characteristic of the streptococcus empyemas, also prevailed in our early cases of pneumococcus pneumonia, although in the majority of these, streptococci were found in the pleural exudate, either alone or in conjunction with the pneumococcus.

The epidemic of streptococcus pneumonia appeared suddenly between March 18 and 20, continued with great severity for six weeks, then gradually became less intense, still continuing, however, May 10 at the rate of four or five cases daily. The virulence of the epidemic, however, became less marked after the first three weeks, although the number of new cases remained high.

It was immediately recognized by the ward surgeons that we were dealing with a different type of pneumonia. Evidence of severe intoxication appeared very early; empyema became very frequent and developed extremely early, two patients entering the hospital with pleural exudate who had been drilling the day previous. While the involvement in the lung maintained a lobar type, clinical evidence of complete consolidation was far from constant. Dulness with suppressed breathing and subcrepitant râles, but inconstant or localized bronchial breathing were the usual findings; rusty sputum, provided there was expectoration, was the rule. Early roentgenoscopy showed that the infiltration was lobar in character. The development of an exudate was often exceedingly difficult to determine by the ordinary physical findings, aided by the roentgen ray, and it became necessary to resort to frequent exploratory aspirations. These were often repeated several times before the fluid could be located. Early this exudate was only moderately turbid, contained numerous polynuclear leukocytes and showed on smear short chain streptococci. Gradually the fluid became definitely purulent.

The bacteriologic findings in ninety-five of these exudates showed pure streptococci in eighty-eight, all being hemolytic. Pneumococci combined with streptococci were found in three: two of Type II and one of Type I. Pneumococci without streptococci, but often combined with other bacteria, were found in four cases: one of Type I, two of Type II and one of Type IV.

At the outbreak of the epidemic, a special effort was made in taking the history to determine predisposing causes or evidence of any infection antedating the onset. It might be stated that the month of March was exceedingly dry, and clouds of dust hung over the cantonment. Either as a result of this, or independently, a mild tracheitis was very prevalent. Wherever a large group of soldiers congregated, the prevalence of coughing was very noticeable. It was, therefore, not surprising that many patients gave a preliminary history of mild sore throat, often of several days' duration, but more frequently a preliminary history of cough. History of great fatigue, or chilling was noted occasionally, but not with significant frequency. Not infrequently from apparently good health, the onset was ushered in with a chill. While our patients came from all parts of the camp, there were certain organizations where the disease was more prevalent. Of the first fifteen cases, ten came from a colored regiment, which had been in Camp several months, and throughout the course of the epidemic this organization furnished the highest percentage. No one company in any organization furnished an unusual number of cases. The depot brigade, which was made up largely of new arrivals, suffered the least. At the time the epidemic began, the camp was not crowded and the number in each barrack was much less than it had been in the winter. The ventilation in the barracks, on account of the mild weather during March, was probably much better than it had been in the two preceding months.

As an aid to early diagnosis and exact localization of the involvement, the roentgen ray was found to be of considerable value. It was of much less assistance in differentiating between consolidated lung and pleural exudate, although when repeated frequently and compared with the ward findings, it proved to be of great value. In the beginning, an order was issued to all ward surgeons in the Medical Service that every pneumonia suspect should be roentgenographed within twenty-four hours, and in addition, every case diagnosed as bronchitis, where the temperature remained above 101, for twenty-four hours. By this means all pneumonias were detected early, and it furthermore stimulated the ward surgeon in that a more careful physical examination be made, as he knew that his findings would be checked up with the roentgen ray. Furthermore the roentgenoscopy was repeated every fifth day until the patient's temperature had been normal for one week. This was of considerable assistance in detecting empyema. The roentgen ray also gave us accurate data regarding the incidence of the lobe first involved. In 596 cases of both types, the first involvement occurred in the lower left lobe in 253; lower right, 252; upper right, 45; upper left, 23; middle, 12; entire right lung, 5; entire left lung, 1, and in both lungs, 5.

Complication with pus formation was very frequent. While empyema developed in 11 per cent. of the pneumonias previous to the epidemic, it appeared in 34.8 per cent. of the cases during the epidemic. One case of suppurative peritonitis was found in the 276 cases of pneumonia preceding the epidemic and five cases in the first 364 streptococcus cases. In three of these it was associated with suppurative pericarditis and in all cases with empyema. It was interesting that four of these cases developed within a few days of each other. Suppurative pericarditis was found in fifteen of the 142 cases of empyema, or 10.5 per cent. It was only found in association with empyema, and in only one case was it found in a colored soldier. Rectus abscess, which was more or less frequent in similar epidemics in other camps was not present in the first 364 cases, but one abscess developed in a more recent case. The colored soldiers developed empyemas in 20 per cent. of the pneumonias and the white soldiers in 45 per cent. The empyema mortality was 44 per cent. in the colored and 64.8 per cent. in the white soldiers. This lessened tendency to empyema and suppurative pericarditis in the colored troops was striking. The deaths from uncomplicated streptococcus pneumonia in the colored was 19.97 per cent.,

and 10.7 per cent. in the white. These figures show that the colored soldiers show a much higher mortality from uncomplicated pneumonia than the white soldiers, but a lower mortality from empyema.

The mortality in 142 streptococcus empyemas was 60.4 per cent. This is considerably higher than the average in other camps. There is no apparent explanation of this unusually high mortality, as the method of treatment was similar to that carried out elsewhere. It is true that in only a moderate percentage of these cases, death was due not to empyema itself, but rather to severe infection, the majority of the patients dying with merely a turbid fluid, the time being too short for it to become thick and creamy. The mortality in 346 streptococcus pneumonias was 32.5 per cent. as compared with a mortality of 11 per cent. in the previous pneumococcus type.

Arthritis as a complication appeared in only six cases. Suppurative otitis media was quite common. Erysipelas developed as a complication in seven cases. These were facial except in one case, where it developed at the site of the exploratory puncture. It was also interesting that four out of six cases of scarlet fever in nurses during this period occurred in nurses working in the pneumonia wards, although all wore masks and gowns, and were instructed regarding the disinfection of the hands.

The treatment of the pneumonias consisted in the ordinary hygienic measures. All patients were placed in special pneumonia wards, each bed separated by a sheet suspended from a wire and 1,000 cubic feet of air space to a patient. No attempt was made to reduce temperature by bathing. Every patient received morphin for pain or to control restlessness. Tincture of digitalis in 1 c.c. doses was given every three hours, day and night, from the time the patient entered the hospital until the crisis, unless evidence of its toxic effects developed, and this appeared in only a very few cases. It was decided during the autumn that we would use this cantonment as a control and not use the serum. It is interesting to note that in the 276 cases of pneumococcus pneumonia, only two patients died with Type I infection. The largest number of fatalities occurred in the Type II group.

In the early days of the streptococcus pneumonia, where aspiration showed a turbid fluid containing streptococci, immediate drainage was resorted to. As the mortality was extremely high, this was discontinued and the fluid became definitely purulent in from seven to ten days. The patients were then operated on by rib resection and drainage. The operated empyemas were irrigated and dressed by the surgical service, but held on the medical service in a special ward, the medical department being on the lookout for new accumulations of pus or other complications. When early rib resection was performed, the patients frequently returned from the operating room in a state of shock, from which they did not recover. Sixty-five cases were treated by immediate operation, with a mortality of 53.9 per cent.; fifty-five were aspirated, the operation being postponed as has been stated; 32.7 per cent. of these terminated fatally; four recovered by aspiration alone. The remaining number of the 142 empyemas, namely, twenty-two, reached an early fatal termination so rapidly that either the pus was not detected until necropsy or the patient's condition was such that aspiration was considered unadvisable.

It would appear that the streptococcus empyemas might be divided into three groups: (1) those who die early, no matter what form of treatment is instituted, from acute toxemia; (2) those with multiple pus foci, difficult to detect, because of the inability to locate and drain all foci; these all die, and (3) those who usually recover, either from early operation or aspiration followed by operation; here are included those with moderate toxemia and those with localized pus accessible to drainage.

PATHOLOGY OF THE EPIDEMIC STREPTOCOCCAL BRONCHOPNEUMONIA IN THE ARMY CAMPS*

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In a previous paper[1] a peculiar form of bronchopneumonia, caused by a hemolytic streptococcus and prevalent in some of the Army camps, was described. This was based on observations made during February and March at Fort Sam Houston, Texas. Since that time I have been able to study during May a quite similar epidemic at Camp Dodge, Iowa,[2] where, however, the surrounding conditions, climate, housing of troops, and organization and construction of the base hospital were very different. Another striking difference lay in the great prevalence of measles in the Texas camp, whereas at Camp Dodge measles has not been very common. In the Texas camp we were greatly impressed with the importance of measles as a disease predisposing to secondary invasion of the streptococcus, although we realized the possibility that other diseases, such as scarlet fever or lobar pneumonia, might act as predisposing causes, and that the streptococcus might sometimes be the primary invader.

At Camp Dodge there were only sixty or seventy cases of measles in the wards, and the pneumonia appears to have arisen quite independently of it. In this camp, therefore, it was the prevailing opinion of the medical officers that measles played little part in the production of the epidemic. Of eighty cases studied clinically and bacteriologically by us at this camp, there were only fourteen in which there had been a recent attack of measles. Even this considerable percentage was the result of a small epidemic of postmeasles pneumonia which appeared during our stay. It was very severe among these men and several of them died, so that among the seventeen cases of interstitial bronchopneumonia that we studied at necropsy there were nine following measles. During the earlier part of the epidemic, however, there were, I am told, very few of such cases. In the Texas epidemic we found among twenty cases of bronchopneumonia at necropsy fifteen with a recent history of measles.

We received the general impression that in a community in which measles was very prevalent the hemolytic streptococcus was able to gain a foothold and to

* Read before the Section on Practice of Medicine at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

1. Cole, Rufus, and MacCallum, W. G.: Pneumonia at a Base Hospital, The Journal A. M. A., April 20, 1918, p. 1146.

2. This study was made with the assistance of Capt. A. W. Sellards and Lieuts. H. M. Thomas, Jr., and A. B. Lyons.

produce an extremely severe form of bronchopneumonia, but that it is quite possible for this organism to cause an epidemic of bronchopneumonia with a very high mortality without the intervention of measles or other obvious predisposing disease.

In Texas we found measles patients entering the hospital with a relatively small percentage of throats infected with the hemolytic streptococcus, but acquiring this infection rapidly when kept together in the wards, and in many instances developing the severe bronchopneumonia. We suggested the advisability of isolating such carriers of the streptococcus as a means of protecting the more numerous measles patients that entered with uninfected throats, and this measure has since been carried out with success at Camp Zachary Taylor.

In Camp Dodge the conditions were different. There were no great numbers of measles patients, and those that developed a streptococcus infection were carefully isolated. Measures of isolation were carried out with great care throughout the well constructed hospital, and we felt that the transfer of infection from patient to patient within the hospital played no important part. Bedding, linen and utensils were carefully sterilized with steam, and physicians, nurses and orderlies were rigidly compelled to wear caps, gowns and masks. The patients, too, wore masks when not in isolation. The great spread of infection appears to have occurred in the camp itself. During the winter there was a moderate amount of lobar pneumonia caused by various types of pneumococcus; but suddenly, March 20, this mild pneumonia with exceptionally low mortality was replaced by a severe disease which began in the Three Hundred and Sixty-Sixth Infantry, an organization of Alabama negroes, and spread rapidly to other parts of the camp. Since the other organizations in this camp have been moved about a great deal, it is difficult to trace the distribution of the disease accurately; but during the remainder of March, April and May, the epidemic assumed great proportions. The measles patients were removed from the hospital proper to certain nearby barracks, and it was only in May that about ten or twelve cases of bronchopneumonia developed among them.

The conditions with regard to the housing of troops, the cold winter climate, the influences of exposure and fatigue are discussed by others. They appear to be about the same as in other camps where no such epidemic has occurred. On the other hand, cultural study of the throats of large groups of men from several of the organizations in this camp made by the resident staff and in part by us has shown a very considerable proportion of carriers of the streptococcus not only in barracks from which cases of pneumonia had come but even in fresh recruits. It is true that the number of carriers is greatest in those barracks which had a high sick rate, but none of the organizations seems to have been quite free.

It is also true that one must accept with some reserve the results of cultures made in this wholesale fashion from throats, since it is not an easy matter to recognize with certainty pathogenic hemolytic streptococci from such a source. Nevertheless, these cultures have a great comparative value.

ETIOLOGY

Throughout this epidemic, pneumococcus infections resulting in lobar pneumonia continued to appear. In these cases, as is usual, the pneumococcus could be isolated from the sputum, and in many instances from the circulating blood.

The prevailing infection, however, was with the hemolytic streptococcus, which frequently appeared in connection with the pneumococcus and often overgrew it completely. This organism could be cultivated from the throat, from the sputum or from the pleural exudate, but not from the circulating blood. Indeed, in those cases in which it occurred in combination with the pneumococcus, cultures from the blood might show the pneumococcus but never the streptococcus. About 100 blood cultures were made by Captain Sellards and Lieutenant Tormey, but in no case was the hemolytic streptococcus recovered.

Cultures from the sputum made by Lieutenant Thomas in thirty-nine cases showed various organisms and combinations of organisms, as may be seen from the accompanying table.

It is remarkable that the influenza bacillus was found very frequently in combination with other organisms, although never as the sole cause of the disease; nor, indeed, except in one instance in which it occurred in the pleural exudate, was it found in the internal organs. The same result was obtained in Texas, although there this bacillus was isolated several times from the lungs. The part actually played by this organism in the production or intensification of the disease is not clear.

The pneumococcus occurs in many cases in the sputum, and in such cases lobar pneumonia was usually found. It is noteworthy, however, that in the series of twenty cases studied at necropsy the pneumococcus was found only three times in the organs, while the hemolytic streptococcus occurred nineteen times.

The blood cultures were made in the usual way by adding from 5 to 20 c.c. of blood to from 50 to 200 c.c. of broth. They were of especial interest since we were told by bacteriologists from other camps that they had been able to isolate the streptococcus from the blood in a high percentage of the cases even in their earlier stages. But neither in Texas nor at Camp Dodge have we been able to recover them except in cultures made a few hours before death. It is also the impression among clinicians who have to do with this disease that it must be a septicemia if one may judge from the evidences of intoxication or from the occurrence of arthritis and abscesses in distant parts of the body. We have unfortunately seen no cases of arthritis, and rarely any abscesses or other lesions that might not be due to direct extension of the infection. It seems possible, however, that just as in the case of chronic phthisis, in which scattered minute tubercles in distant organs seem to indicate an occasional transportation of tubercle bacilli in contrast with the generalized miliary tuberculosis, which is more closely dependent on a real if temporary septicemia, so here there may be a rare or occasional transportation of a few streptococci.

Thirty-six cultures were made by Captain Sellards, and of these, two showed the pneumococcus Type II, one the pneumococcus Type IV, while three developed a few colonies of a nonhemolytic streptococcus. All the other cultures were sterile, although taken by choice from the sickest patients who were found to be suffering from a streptococcal infection of the lungs. It is noteworthy that in the two cases in which the pneumococcus Type II was isolated from the blood,

necropsy revealed the existence not only of a lobar pneumonia but also of an interstitial bronchopneumonia caused by the hemolytic streptococcus, although the latter could not be found in the blood.

Cultures from the pleural fluid obtained by aspiration during life were made on blood agar plates, and the fluid itself was examined in smears. In almost all cases a single organism was found in pure culture, but in one case the influenza bacillus occurred in combination with the streptococcus. In only two was the pneumococcus found, while the hemolytic streptococcus was present in pure culture in twenty-one. The pleural fluid gives the most trustworthy evidence as to the nature of the infective agent concerned in the pneumonia, although it is true that the streptococcus, if present, may well have overgrown a pneumococcus which may still appear in the blood.

Cultures made at necropsy, except in the few fatal cases of uncomplicated lobar pneumonia caused by the pneumococcus, showed the hemolytic streptococcus in every situation throughout the respiratory tract and pleura. The heart's blood regularly contained this organism, and it was found in such accessory areas of inflammation as occurred in the mediastinum, and even in the peritoneal exudate in several cases in which there was peritonitis.

SPUTUM EXAMINATIONS*

Organisms	Number
Pneumococcus Type I	2
Pneumococcus Type II	5
Pneumococcus Type III	2
Pneumococcus Type IV	3
Streptococcus hemolyticus	1
Pneumococcus and Streptococcus hemolyticus	2
Pneumococcus and influenza bacillus	6
Pneumococcus, Streptococcus hemolyticus and influenza bacillus.	1
Streptococcus hemolyticus and influenza bacillus	5
Staphylococcus and influenza bacillus	3
Streptococcus hemolyticus and staphylococcus	3
Streptococcus hemolyticus and nonhemolytic streptococcus	3
Nonhemolytic streptococcus and influenza bacillus	2
Pneumococcus, staphylococcus and influenza bacillus	1
Total	39

* Pneumococcus, with or without other organisms, appeared in 22 cases. Streptococcus hemolyticus, with or without other organisms, appeared in 12 cases. Influenza bacillus, combined with other organisms, appeared in 18 cases. Staphylococcus aureus, combined with other organisms, appeared in 7 cases. Nonhemolytic streptococcus, with or without other organisms, appeared in 5 cases.

PATHOLOGIC ANATOMY

There is little to add to the description of the anatomic changes in the streptococcal bronchopneumonia that was given in the former paper.

In this epidemic the characteristic lesions designated there as interstitial bronchopneumonia appeared in typical form, especially in those cases which followed measles. Such cases appeared to be much more rapidly fatal than those in which the streptococcus was the primary invader. The patients were extremely sick men, and it was observed, as noted in the Texas epidemic, that they quickly lost the power of producing any voice sounds and spoke only in a hoarse whisper. Many of them died before the development of empyema. At necropsy there was found the most intense congestion of the whole respiratory tract. The lungs could be distended with air, even though they were found to be extensively collapsed. Nodular consolidation could be felt throughout, but especially in the posterior parts of the lungs. On section, the bronchi contained a gray purulent exudate. They were markedly dilated toward the periphery; their mucosa was deep purplish gray. All showed thickening of the walls, and the terminal bronchioles were especially thickened, so that with the adjacent alveoli they projected in cross-section in the form of small, firm nodules from the center of which a droplet of thick pus could be expressed. Such dense peribronchial nodules were nearly always surrounded by hemorrhage. Even in these very fresh cases there were occasional small areas of more homogeneous consolidation. Microscopically they showed the features already described in detail, which consist essentially in the filling up of the lumen with an inflammatory exudate of leukocytes and blood in which bacteria are numerous, and in the infiltration and thickening of the wall of the bronchioles with mononuclear wandering cells. Great hyperemia and edema of the bronchial wall is soon accompanied by a less evident new formation of connective tissue cells. The adjacent alveoli, so far as they are not filled with red blood corpuscles, are packed with mononuclear cells and dense fibrin. The alveolar walls are infiltrated with mononuclear cells, and are widened.

In this epidemic, however, certain new features should be noted: The number of streptococci seems to be greater than we have seen in other cases. The bronchioles are fairly lined with clumps and tangled masses of streptococci in long and short chains. The mucosa, and even a part of the connective tissue of the bronchial wall, is found to be necrotic and adherent like a false membrane lining the whole of the terminal portion.

In general, the organisms do not penetrate deeply into the tissues, but there are many cases in which in addition to the filling of the adjacent alveoli with dense fibrin, desquamated epithelium and mononuclear cells, there appear areas in which all the alveoli are filled with polymorphonuclear leukocytes loaded with streptococci in short chains. Such areas of lobular pneumonia were described in the former paper and the great numbers of organisms found in the alveoli were mentioned; but this condition seems to have occurred far more frequently in the epidemic at Camp Dodge. Indeed, there were cases in which larger confluent areas of pneumonia resembling closely the lobar pneumonia produced by the pneumococcus occurred in association with typical peribronchial and interstitial changes. From these nothing but the hemolytic streptococcus was isolated. It is, of course, difficult to distinguish between the pneumococcus and streptococcus in stained sections; but one may find the streptococcus in long, flexible chains in these areas, especially in the marginal alveoli, where the exudate is loose or where it consists only of fluid. In such areas of diffuse pneumonia, one finds sometimes the most beautiful hyaline fibrinous thrombi filling all the capillaries of the alveolar walls.

It seems, therefore, that while the very characteristic interstitial bronchopneumonia resulting in the production of firm peribronchial nodules occurs as the most typical result of the invasion of the streptococcus, the rapid growth of the virulent organism may frequently produce even in these cases a more widespread and homogeneous consolidation owing to the filling of the alveoli with a leukocytic exudate loaded with organisms. This may even assume lobar proportions.

Study of the larynx was carried out in all these cases, and in several instances extraordinary changes were found.

There was, of course, intense reddening in all; but in seven cases there was an advanced ulcerative process affecting especially the vocal cords, but also the margins of the epiglottis, the aryteno-epiglottic folds, the walls of the pyriform sinuses, and the lateral walls of the interior of the larynx. In one case there was a deep phlegmonous infiltration of the tissues about the epiglottis which in section revealed great numbers of streptococci in long chains. The ulceration of the vocal cords causes a deep excavation along their whole length, so that the inability to produce voice sounds is easily understood. Of the seven cases in the list, two were said to have followed German measles, four were definitely associated with measles, while one gave no history of previous disease. All, however, were rapidly developed and severe cases.

The largest group of cases comprised those in which empyema developed. This included four of the post-measles cases in which the patients survived long enough for this complication to appear. In these the lungs were even more intensely collapsed, but showed in general the same peribronchial and interstitial changes, often with the addition of patches of lobular pneumonia. The involvement of the interlobular septums and the infection and thrombosis of the lymphatics have been described before.

So, too, has the organization of the exudate in the alveoli and bronchi and on the pleural surface. No new features have been observed in the empyema itself. Beginning with an abundant thin, turbid, brownish fluid, it soon assumes a purulent character, and the pleural layers become thickened by the formation of vascular granulation tissue covered with a thick layer of fibrin. Particularly important from a surgical point of view are the adhesions, which occur in such a way as to imprison part of the exudate. The anterior margin of the lung may adhere to the pericardial sac and thus enclose a quantity of pus between the lung and the pericardium, or two lobes may imprison a pocket between this.

We have encountered many abscesses in the substance of the lung itself. These may reach a great size, and are often multiple. In many instances they communicate widely with large bronchi and thus empty themselves, appearing as ragged cavities into which hang shreddy masses of necrotic tissue. Secondary infection may occur in such open cavities.

Combinations of lobar pneumonia caused by the pneumococcus, and interstitial bronchopneumonia caused by the streptococcus, were again observed in the same lung, and cultures of these organisms were isolated from the corresponding portions of the lung by Lieutenant Lyons.

These are the principal changes which affect the respiratory tract itself. There are few complications which deserve attention.

COMPLICATIONS

Pericarditis is not especially common, but there were three cases in the series with fibrinopurulent exudate and great thickening of the pericardial membranes. In one of these the pericardial sac contained more than a liter of exudate.

Peritonitis of an acute fibrinopurulent character occurred twice. It is not easy to explain its origin, but it seems probable that it is due to extension through the diaphragm.

In one case there was an extensive abscess among the muscles of the neck, reaching from the apex of the pleura up to the mastoid region and downward between the scapula and the vertebral column. This, too, seems to have been due to an extension of the infection, possibly from the empyema or from the infected tissue of the mediastinum.

The abdominal organs presented no lesions that could be ascribed to the streptococcus.

There was found, however, a hyaline degeneration and necrosis of the muscle fibers of the rectus abdominis in one case, without any alteration in the gross appearance of the muscle. This seems quite similar to the hyaline change that occurs in typhoid fever and is known as Zenker's degeneration. In two other cases the same condition was found, but was accompanied by symmetrical rupture of the whole muscle with hemorrhage.

The rectus muscles were torn through on both sides in their lower third, and a considerable hematoma had formed between the retracted ends. In one of these cases the streptococcus was found in the extravasated blood, but in the other there were no organisms. It seems probable that this infection occurred secondarily, just as the abscesses which appear symmetrically placed in the rectus muscle in pneumococcus infections are probably due to a secondary localization of the pneumococcus in such degenerated muscle fibers.

Otitis media occurred in one or two cases, but there was no great prevalence of mastoid suppuration.

SUMMARY

In general, it may be concluded that the *Streptococcus hemolyticus*, with or without predisposing diseases of various sorts, such as measles, gives rise to extensive and fatal epidemics of a peculiar bronchopneumonia which in most cases affects the framework of the lung and the bronchial walls in such a way as to suggest the name interstitial bronchopneumonia. This seems especially severe after measles. It is often associated with a diffuse or patchy lobular pneumonia in which the streptococcus appears finely scattered in the alveolar exudate. Such areas may be confluent and resemble a lobar pneumonia.

Ulcerative laryngitis, which may cause deep destruction of the vocal cords and epiglottis, occurs in the acuter cases and especially in those following measles.

Empyema is an extremely frequent complication, as has been generally recognized; but other complications are not very prominent. Pericarditis, peritonitis, otitis media and occasional abscesses may be mentioned. Hyaline degeneration of the muscle fibers may occur in the rectus abdominis muscles, sometimes leading to their rupture.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. SMALL, MILLER AND LUSK, AND MACCALLUM

DR. WILLIAM H. WELCH, Baltimore: Let me, in the first place, make one comment: How comes it that there is another discussion on the prevention of pneumonia in another section? The Section on Preventive Medicine is discussing an important paper by Dr. Cole. I call attention to that, as I think it is a mismanagement to have two discussions on pneumonia going on simultaneously in two sections.

How new are the problems which we are discussing here today is evident when we recall that no such discussion could have taken place a year ago. It is true that when we began to prepare for the medical care of the troops in our camps

we foresaw that pneumonia would play an important part, as it always has in large camps in war, especially at certain seasons, and with the view of making available all our newer knowledge of this disease Dr. Cole prepared his admirable monograph on pneumonia, which has been widely distributed and has been most helpful. This monograph treats, however, of the familiar lobar pneumonia due to the pneumococcus, whereas the more important and fatal form of the disease has been streptococcus pneumonia with its complications, which is a quite different disease, concerning which we had relatively little information. It is this latter affection which has been the most serious problem at our camps, and which has been the subject of the most intensive study.

Since visiting Camp Wheeler with General Gorgas last November, when pneumonia was becoming unusually prevalent in the camp, I have had the opportunity of seeing the conditions in many other camps where the disease has existed and have become impressed with the necessity of a combined attack on this problem on the part of the clinician, the bacteriologist, the pathologist and the epidemiologist. It is quite impossible to arrive at any clear understanding of these streptococcus infections, of which pneumonia and empyema are the most important manifestations, by clinical studies alone, or even by clinical and bacteriologic combined. Careful postmortem examinations are absolutely essential. Such examinations should be made in all cases of death in our camps, unless there is some exceptional reason for not making them, and it is most unfortunate that obstacles should be placed in the way of the freest use of this essential aid to advancing medical knowledge.

As I have been attending a discussion on the prevention of pneumonia in another section, going on simultaneously with that in this section, I have unfortunately missed hearing the papers read here, but I should like to indicate some of the problems on which we need more light regarding these streptococcus infections. We need more information regarding *Streptococcus hemolyticus*, the organism chiefly concerned, notwithstanding all the study devoted to it, and it is gratifying to know that some of our best bacteriologists are concentrating their attention on this question. We are not clear as to the precise rôle played by pre-existent infections, especially measles, bronchitis, sore throat and pneumococcus infections, in favoring the development of streptococcal diseases. The clinical and anatomic characters of streptococcal pneumonias and pleurisies need further study, as does the relation of the empyemas to the pulmonary affection. The mode of conveyance of these diseases, and especially the rôle of carriers, is not settled. Especially important are epidemiologic studies intended to elucidate the starting point and the agencies concerned in spreading these streptococcal infections in the camp, the hospital and the civil community. Every effort should be made to furnish, if possible, a sound experimental basis for preventive inoculation and specific therapy, and, failing this, the best methods of prevention and treatment. We already know that much can be accomplished by proper administrative control, segregation and the use of gauze masks. It is important that detention and observation camps for incoming and outgoing troops be constructed and organized and that the receiving wards of the hospital, the observation wards and those for pneumonia and other infectious patients be arranged and administered so as to guard against conveyance of the agents of infection in the most efficient manner possible.

DR. LAWRENCE LITCHFIELD, Pittsburgh: In reply to Colonel Welch's criticism on having two discussions of pneumonia going on at the same time, I will say that the Section on Preventive Medicine considered pneumonia among the other preventable diseases, whereas the Section on Medicine has devoted itself to the study of pneumonia as it has occurred.

COL. F. F. RUSSELL, Washington, D. C.: I have not been able to hear the papers, and what I will have to say will be unconnected with what has gone before. Examining our disease incidence charts, we find that a large proportion of all deaths have been due to pneumonia. Pneumonia is the principal cause of death. In Camps Pike, Beauregard and Wheeler the death rate was 24 or over. In Camps Devens, Upton, Dix, Meade, Custer, Grant, Sherman, Wadsworth, Hancock, Logan and Lewis the death rate was under 8. If we place these camps in the localities from which the men came, we find that they fall into a natural group. For instance, the three black camps would be placed in Georgia, Florida, Mississippi, Louisiana and Arkansas. The men coming from those regions furnished the greatest number of deaths. The lowest death rate is found in the camps that lie in the northeastern section of the United States. The death rate is low where the rural population is small. In New England only 17 per cent. of the population is rural, and the death rate is low. On the other hand, where 78 per cent. of the men come from the country districts, the death rate is higher. Pneumonia did not occur extensively among the troops coming from the thickly settled parts of the country, but only among the troops coming from rural regions.

Another point to consider is the number of days in hospital. When the men were admitted to sick report very freely the death rate was low. The more men there were on sick report the lower the death rate. The same relation exists between city and country population and much and little sickness. At Camp Upton, which was made up of men from New York City, the death rate was practically the same as in the city. Camp Wadsworth, which was filled with New York City troops, had an even better rate. Therefore, men from New York City, whether they remained at home or went to camp, did not have any great difference in death rate. Whatever the difference was was in favor of the camp. The same is true of Camp Meade, whose men came from Pittsburgh neighborhood; the men were better off in camp than they would have been had they stayed at home. The same thing is true of the men from Chicago. When we get down South the conditions are reversed. Here is the death rate for New Orleans, which is higher than that in New York. When we compare the troops from New Orleans we find the conditions also reversed. In Louisiana the population is largely rural and nonimmune to the diseases of childhood, and when exposed to these diseases the troops have a high morbidity and mortality. That is the principal thing that has come out from our study of epidemic diseases from this point of view—that is, that the population of the cities and the population of the thickly populated districts seem to be immune to measles and to a certain extent to the other infectious diseases. Persons from the country districts, on the other hand, are not immune to these diseases and have a higher mortality when collected together in camps. If we look back to the Civil War we find that the same conditions existed. That is, northern troops in the southern locations were much more healthy than the southern troops, no matter where they were located.

DR. RUFUS COLE, New York: I regret very much that I had to be present this morning at the meeting of another section, and so have been unable to hear the papers presented here. I imagine that all phases of the pneumonia problem have been considered and fear that anything I may say will be only repetition. However, I should like to emphasize that our Army experience has shown that there are two essentially different kinds of pneumonia, two different diseases; one of them is an endemic disease, and the other is an epidemic disease. The former is due to pneumococci, the latter to streptococci. Streptococcal infections have a tendency to appear in epidemic form and are usually secondary. This, as Dr. Theobald Smith has pointed out, is especially true of streptococcus infections in animals. Such infections are almost always secondary, occur in epidemics and fortunately tend to be self-limited. A possible explanation for this is that streptococci are extremely variable in virulence. On passage through animals the virulence rises quickly, but just as quickly disappears when the bacteria are grown on artificial mediums. What has apparently happened in the Army is that streptococci, infecting measles patients in whom the soil is especially suitable, have grown rapidly in virulence, so that they have been able to infest persons suffering from other mild respiratory diseases, or even normal persons. If this is true, obviously the time to stop an epidemic is at the very onset. To do this requires early diagnosis and isolation of

the first cases arising. This would be possible provided laboratory facilities were available, and provided the cases did not occur with too great rapidity. It is not possible, indeed it is probably not advisable, to stop measles in the Army altogether; but it does seem advisable that an attempt be made to distribute the occurrence of measles over longer periods of time. This could possibly be done by more strict isolation of contacts, and especially by better organization of detention camps.

Much can be done to prevent cross-infections in the hospital, especially to prevent the occurrence of pulmonary infections in measles cases, by more rigid hospital isolation. The Army hospitals were originally organized as general hospitals, with only moderate provision for the reception and care of patients suffering from communicable diseases. Experience has shown, however, that Army hospitals should consist of two distinct divisions, one for the treatment of noncommunicable diseases, and one for the care of patients suffering from communicable diseases. Separate receiving rooms should be provided for the two types of cases, with a sufficient number of observation wards for complete isolation of patients, until positive diagnoses can be made, and until it can be determined whether or not the patients are carriers of hemolytic streptococci. In certain of the camps such a plan has already been put into operation. But it seems that more emphasis should be laid on the separate and proper organization of the infectious disease service in the Army hospitals.

DR. WALTER P. BLISS, New York: The papers have all brought out the importance of the pneumonia problem at our base hospitals in the Army camps and the similarity in these various camps, no matter where located. Our experience at Fort Riley has been the same as the experience at the other camps. The striking things have been the number of empyemas, the high mortality of this complication, the great frequency of the streptococcus as the cause, and the tendency of these empyemas to locate in pockets.

A few points which I might mention may be of practical interest. We have had to revise our criteria for the diagnosis of empyema, largely because of this tendency of the empyemas to pocket. We cannot depend on the ordinary physical signs of fluid to make the diagnosis. In an extensive series of blood counts we found that cases of pneumonia with complicating emypema showed practically the same blood count as those that were uncomplicated. In other words, we could not depend on leukocyte counts in showing the presence of this complication. Furthermore, as Major Miller brought out, the roentgen ray was of little value in showing small accumulations of fluid. If temperature, pulse or respiration remain elevated after six days we should begin to look very vigorously for fluid. We have frequently obtained pus from patients with absolutely normal temperatures. We have obtained pus from patients whose respirations and pulse were not elevated, so that if any one of these factors were elevated, it was our practice to make particularly careful examination for fluid and not to spare the aspirating needle. We had a high mortality in empyema when the operation was performed early. We attributed it usually to a spread of the empyema to the other side following operation. It would not always occur immediately after operation, but sometimes several days or a week after. Consequently, we adopted the method of aspirating repeatedly and operating ten or fifteen days after the pus was first diagnosed. We found it of particular value after operation to irrigate the chest cavity with Dakin's solution daily. It deodorized the pus and caused apparently a diminution in the amount of discharge.

Early in our experience we did both costatectomy and simple thoracotomy. We feel, however, that costatectomy is to be preferred. We have paid particular attention in treatment to digitalization. We have used a tincture of digitalis which was standardized for us by Dr. Cary Eggleston of Cornell after the cat method of Hatcher and Brody. Our tinctures standardized to a dose of 0.17 c.c. per pound of body weight of patient. The total dosage was given during the first thirty hours as a rule (that is, a man weighing 120 pounds would receive about 20 c.c.) in order to avert later the possibility of cardiac failure. In emergencies we used digipuratum intravenously, but later could not obtain it, and now we use digitalone intravenously or Nativelle's crystalline digitalin by mouth. Serious cases were treated in open air wards.

In regard to serum: We have had but few cases of Type I pneumonia, but we have had very good results with the Type I antipneumococcus serum. There were but five deaths, of which two were complicated by meningitis and one by empyema; so, excluding these, our mortality in Type I was low. A series of cases was treated with Dr. Kyes' chicken serum. We thought there was reduced toxicity in these cases, but the number of cases was so small we do not feel justified in drawing conclusions at this time.

DR. GEORGE F. DICK, Chicago: I had the opportunity to observe the pathology of these streptococcus pneumonias in both Camp Pike and Camp Dodge, and I was impressed with the prevalence of one type I saw at Camp Pike which I did not see at Camp Dodge. It was a streptococcus pneumonia. The sputum cultures showed no pneumococci, only a streptococcus; the blood cultures were positive for streptococci in the early stages. A bacteriologic examination of the lung tissue itself showed streptococci. Another bacteriologic finding in Camp Pike which I did not see at Camp Dodge was nonhemolytic streptococci. These streptococci produced no effect on the blood whatever and fermented no sugar. They were present in some cases of pneumonia of lobar distribution; that is, they were isolated from the lung tissue.

In studying pneumonia at Camp Dodge I was impressed by the fact that many of these cases gave a history of pneumonia following overexertion. I do not believe that has been brought out enough. Particularly after so-called hikes the men would come down with pneumonia.

With relation to Colonel Russell's figures on death rates and sick lists, the fact was that many cases of streptococcus pneumonia followed bronchitis, and I do not think there has been enough care in isolating these cases of bronchitis, and deciding who ought to go on with training and who ought not. These epidemics vary a great deal in severity, and too much reliance should not be placed on figures. At Camp Dodge I am told that the mortality was high in the early part of the epidemic, no matter what the treatment was, and in the latter part, since I have been there, the ordinary surgical treatment has resulted in a high percentage of recoveries.

DR. EDWARD C. ROSENOW, Rochester, Minn.: The studies reported in this symposium emphasize as never before the immensity of the streptococcus problem in its larger sense. Through combined intensive clinical, laboratory and pathologic study a definite advance of our knowledge has been made. The great prevalence of disease due to the pneumococcus-streptococcus group of micro-organisms, with its high mortality rate, should lead to the most intensive effort to prevent its recurrence. In the case of pneumococcus infections there is some hope that this may be done. Lister has shown that persons can be protected against pneumonia by prophylactic inoculation of pneumococci for at least nine months.

Major Stone's report on the use of the autolyzed pneumococcus antigen furnishes valuable additional evidence that this form of treatment of lobar pneumonia has definite beneficial effects. This antigen has the power to rapidly stimulate the formation, or cause the mobilization of antibodies and to protect animals against pneumococcus infection. It should be used in the early stages of lobar pneumonia due to pneumococci other than Type I. In Type I pneumococcus pneumonias Cole's serum should take preference, but since two thirds of the pneumonias and most of the deaths are due to other than Type I pneumococci, there is a large field for this form of apparently effective active immunization. Of its harmlessness, at least, there can be no question, and its intensive use is indicated.

DR. EDWARD C. G. FRANING, Camp Dodge, Des Moines, Iowa: We emerged from the epidemics of pneumonia in the various camps with a new idea of pneumonia. Hereafter pneumonia will be classified bacteriologically and pathologically, and the prognosis will depend greatly on the classification, the streptococcus, especially the hemolytic variety, being most fatal. During the epidemic at Camp Dodge there were many complications, among them sinus infections and arthritides, espe-

cially of the knee, but the most frequent was empyema. This was a very serious and relatively fatal complication. The death rate from the empyemas and pneumonias with empyema in the streptococcic class rose and fell with the rise and fall of the epidemic, no matter what method of treatment or operation was used. Also other infections incident to other departments of the hospital rose and fell with the tide of the epidemic. Expectant treatment, repeated aspiration, pleurotomy or costotectomy all have about the same results in the empyemas. The fluids obtained from the empyemas was usually thin, slightly cloudy, brown, yellowish brown, or walnut juice colored, sometimes with flakes of yellowish fibrin, or thicker yellowish fluid. Whenever the latter was found the prognosis seemed better. This sort of fluid was obtained more in the latter part of the epidemic. The mortality in the epidemic empyema complicating pneumonia was very high for two reasons: First, because the patients sent to the operating room were so extremely sick, whether sent early or late, it would seem they would die no matter what method one would pursue; second, the fluid was so often sacculated, and pockets were situated anywhere and everywhere, that unless the whole pleural cavity was explored and adhesions broken up, which was very shocking to the patients and especially under local anesthesia, considerable fluid was left behind, sometimes even a large amount. I should like also to warn against mistaking these early pleurisies and central pneumonias with their somatic abdominal pain and rigidities for appendicitis, the differentiation of which I had to make in many cases this last winter. The character of the pain, and the abdominal rigidity, and blood count, below 22,000 suggesting appendicitis and above pneumonia, and close watching differentiated practically always.

THE PRINCIPLES OF THYROID SURGERY *

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Goiter has received medical and surgical attention, as annals of medicine make record, from time immemorial. Because of its conspicuous location, diseases of the thyroid are far more noticeable than those of other duct-bearing or ductless glands, and yet most of the knowledge concerning it has been acquired within the last fifty years. The chronic character or cyclic recurrence of some diseases of the thyroid is evidenced by the remarkable number of remedies, supposed to be exceedingly effectual, which have been used in their treatment; surgery was employed only as a last resort. Because of the high mortality, most operations were done only when necessitated by obstruction to respiration or circulation. A surgical vicious circle ensued; a high mortality led to late operation, and late operation to a high mortality. The seriousness and frequency of infection was also a great factor in retarding surgery, and progress was not made until the period of antisepsis and asepsis, which developed methods of safety and advanced all surgical knowledge.

The thyroid has a single anlage developing between the portions of the tongue, which very rarely remains in this location. We have seen but three such in 12,000 goiter patients operated on, and in several thousand more unoperated patients with goiter. Midline cysts of the neck are occasionally seen in the hyoid region, incident to defects in development, and are usually connected with a small remnant of the gland behind the hyoid. The pyramidal lobe, occurring in a considerable percentage of persons, is the result of a stringing out of the gland through the attachment of the central portion to the hyoid in its descent.

From the care with which nature has guarded its blood supply, the thyroid, weighing approximately but an ounce, is a gland the secretion of which is of the utmost importance; this we see proved in the vegetative type of animal existence which occurs in cretins who are born without this gland, or those who subsequently lose it—the myxedematous. No other gland in the body has been so well cared for in its circulation by nature as the thyroid, all of the blood in the body passing through it once an hour. With its four regular arteries supplied by various main trunks, and the anomalies leading to greater circulation, nothing should interfere with it. The gland consists of a mass of alveoli or vesicles lined with a single layer of columnar cells. Having no ducts, it has been assumed that its secretion passes through the lymphatics or through the venous system as a hormone. There is no outlet from the interior of the vesicles, and the secretion of colloid accumulates here. As has been previously stated, it is evidently true that these cells deliver a secretion from their bases, and accumulations within the vesicles, should they ever leave them, are passed back through the cells as a filter.

Our surgery of the thyroid was developed for the removal of goiters causing pressure which interfered with respiration or the circulation, or for cases of great deformity. These goiters consisted of colloid adenomas, cysts and fibrocystic, malignant or tuberculous tumors. Another variety of disease, exophthalmic goiter, with its various pseudonyms, was recognized as probably being associated with a diseased thyroid, because in it the gland was palpably changed from the normal. The mortality in operations on the gland in this condition was so high that even masters of surgery, such as Kocher, for a long time did not consider it amenable to surgery. Yet, the foundation of our present knowledge of the thyroid is built on a study of the overworking or hyperplastic thyroid, the normal gland and the hypofunctionating gland of myxedema dropping into their respective relationships after these discoveries were made. The thyroid undoubtedly is one of the most important glands in the body, and while we are far from a complete knowledge of its activities, the work of Plummer and Kendall, through investigations into the physiologic action of its secretion, is such as to bring us to the verge of a realization of its fundamental effect on life. Iodin was discovered in 1812 by B. Courtois. Baumann,[1] in 1895, found iodin to be associated with the thyroid secretion, and Kendall,[2] in 1915, separated, as a pure crystalline substance, the organic compound which contains the iodin.

Kendall has been able to separate the compound of the thyroid containing iodin from the balance of the gland. This is accomplished by destroying the proteins of the thyroid by means of boiling with a strong alkali, which does not decompose the iodin-containing compound, and, by suitable treatment, it can be separated as a pure crystalline substance containing 65 per cent. of iodin, its formula being $C_{11}H_{10}O_3NI_3$. The

* From the Mayo Clinic.

* Read before the Section on Surgery, General and Abdominal, at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

1. Baumann, E.: Ueber das normale Vorkommen von Jod im Thierkörper, Ztsch. f. physiol. Chem., 1895, **21**, 319.

2. Kendall, E. C.: The Isolation in Crystalline Form of the Compound Containing Iodin which Occurs in the Thyroid; Its Chemical Nature and Physiologic Activity, The Journal A. M. A., June 19, 1915, p. 2042; Tr. Assn. Am. Phys., 1915, **30**, 420.

compound contains an organic nucleus called indol, as well as oxygen. Wishing to emphasize these two facts and to relate it to its sources, Kendall called the compound thyro-oxy-indol, which has been abbreviated to thyroxin. Its function is involved in the most fundamental processes of life, that is, the production of energy. Kendall's work has furnished the only pure crystalline compound ever separated from the thyroid that possesses the same physiologic activity as the gland itself. This work places the investigation of the thyroid on a clear chemical basis and has made it possible to study quantitatively the action of the thyroid hormone.

Plummer, in the observation of many thousands of cases of goiter, numerous cases of cretins and of myxedematous patients, has shown that the rate at which energy is produced by the animal organism is controlled by the amount of thyroxin which is acting within the cells of that body. While not the only factor influencing the rate at which we live, it probably has more to do than any other substances with the governing of the speed at which energy is produced in the body. Plummer shows the average basal metabolic rate of exophthalmic goiter patients at the time of coming under observation to be 57 per cent. above normal, and the average rate in those in whom ligations were done and who returned in three months, to be plus 39 per cent. The average rate eighteen days after thyroidectomy is plus 19. Ligation probably causes the metabolic rate to drop approximately 15 per cent. Patients having adenomas of the thyroid also show variations in the output of the gland, the average rate on coming under observation being plus 39, and the average rate eighteen days after thyroidectomy, slightly above normal. The average energy transformation for normal persons is approximately 39 calories to a square meter of body surface an hour. The basal metabolic rate of normal persons does not fluctuate more than 10 per cent. above or below this average. Plummer's observations show that the thyroid hormone (thyroxin) determines the rate of formation of a quantum of potential energy available for transformation on excitation of the cell. The total amount of thyroxin in the tissues of the body of normal persons is in all probability approximately 13 mg. Each increase of 0.033 mg. (approximate) of the thyroxin in the tissues of the body increases the rate of energy output 1 per cent. Other factors being constant, the total energy output of the body varies with the amount of thyroxin in the tissues and the rate of excitation.

The work of Plummer is of the utmost importance in showing the thyroid to be a most active factor in the metabolism of the individual. The metabolic rate is raised or lowered by the activity or nonactivity of the thyroid and is measured by the amount of oxygen utilized from the air in respiration and the output of carbon dioxid in the expired air.

Exophthalmic goiter or gland hyperplasia, and overactivity develops an enormous increase in the metabolic rate, running in cycles of recurrence above the basal metabolism from 16 to 100 per cent. or more, according to the severity of the case. We thus have small exophthalmic goiters which are often more active in their effect than others which are evidently several times larger than normal. There is little or no deposit of colloid, as a rule, in the active cases, the colloid serving as a suspension agent for secretion, being deposited in the interior of vesicles when seen in simple goiters and as occasionally seen in areas of exophthalmic goiter. Therefore, we see that the energy output of the gland may vary greatly and the development of the remaining lobe, or even of half a lobe, after operation or partial thyroidectomy may subsequently cause a metabolic rate of from 40 to 90 per cent. above normal; this, however, rarely happens. It is difficult in some cases to tell the exact amount of gland it is necessary to remove in order to secure a drop in metabolism to nearly normal limits. Thus a few cases require a second, and a still smaller number a third operation. They are not the result of the failure of surgery to cure exophthalmic goiter, but are a still greater proof of the value of surgery in its cure. The removal of a larger portion of the gland accomplishes a cure depending on the activity of the individual gland, as the benefit of the operation is obtained through the reduction of secretion. Thyroid secretion will persist in the body for approximately eighteen days (Plummer). We are still lacking in the knowledge of the activating agent which causes hyperplasia, the discovery of which is undoubtedly impending.

The simple goiters of adolescence are common. Only such of them require operation as are troublesome because of pressure or are unsightly and resist treatment. In some persons they are associated with a demand of the body for thyroxin, and iodin in most any form relieves the gland of its colloid. The gland is not hyperplastic. In persons under 25 years of age, small adenomas in the thyroid and the simple colloid goiters are only occasionally recommended for surgery. Later in life, the degenerations which occur in goiters of long standing, such as encapsulated adenomas and encapsulated colloid areas, when the secretion has become reduced, may develop thyrotoxic conditions. Kocher pointed out the fact that the degenerations often occur in women from 40 to 60 years of age, whose goiters of long standing are altered by iodin treatment. The older the person when goiter develops, the more quickly must degeneration occur. These patients have staring, but not protruding, eyes, widening of the fissure through sagging of the lower lid, and, because of the rapid pulse and tremor, the condition is often looked on as exophthalmic goiter. Plummer has pointed out the distinction between this condition and exophthalmic goiter.

Simple types of goiter or adenomas often grow to enormous size and occasionally may project into the chest, as substernal goiters. In some instances the entire thyroid enlargement is beneath the sternum, and the troubles occurring are due to degeneration or pressure, with great increase in the size of the veins of the neck and chest, showing the impeded return circulation. The roentgen ray is an important factor in disclosing the size and location of such tumors.

The dangers incident to the operation are the condition of the patient, as in exophthalmic and thyrotoxic goiters, and those due strictly to the operation, as loss of blood, secondary hemorrhage, interference with respiration, injury to the recurrent nerves and to the parathyroids. The parathyroids and the recurrent nerve should be guarded in simple goiter by leaving the posterior part of each lobe of the gland on the posterior capsule, and by care in the use of forceps, and care in suturing the remainder of the gland and in the ligation of its vessels. Laryngoscopic examination should be made before operation to disclose the condition and the enervation of the vocal cords, as paresis or paralysis of an abductor or adductor may

be present with but little change in the voice, and especially as unilateral tumors on the right side may produce paralysis of the left recurrent nerves, and surgical injury to the right side may result in total loss of voice. The parathyroids controlling the nitrogen elimination should be preserved as a guard against tetany. Local anesthesia may be used in special cases, but ether and local anesthesia are used in most instances.

The best method of approach is through a low collar incision. The sternothyroid and sternohyoid muscles should be cut high and resutured if they interfere with the surgical exposure of the gland; greater experience seldom requires their division. The isthmus should be removed and double resection is the operation of choice in simple goiter, while in the exophthalmic type, removal of the larger lobe, isthmus and part of the remaining lobe is the most common procedure. Drainage is instituted for twenty-four hours in the majority of cases, although the substernal goiter, the cavity of which does not immediately become obliterated by intrathoracic pressure, should not be drained longer than a few hours, at most, to retain a blood clot for organization; otherwise drainage in such cavities is indefinite.

RECURRENCE OF GOITER

In the simple forms of goiter, the same condition may remain in the portion of the gland preserved, to develop occasionally a recurrence of similar growth. Waves of activity of the gland occur and a small gland occasionally creates a far greater effect than a large one, through variations in its secretion, the quantity of the output or the resistance of the individual. Failure properly to judge this is bound to occur in a small proportion of cases. The cures by operation, however, are practically 70 per cent., with many of the remaining cases improved. Plummer explains to us many questions of recurrence, formerly supposed by medical men to indicate that surgery was not warranted. The results obtained by operation approximate what should be expected from the work of Plummer and Kendall, which I consider at this time the most important advance made in medicine of the chemistry of life.

War Infants—A New Type.—In the report on infant welfare in Germany lately published by the local government board, there is an interesting paragraph in reference to a controversy which has been waged for some time in that country as to whether the war has produced a new type of infant. The claim of having discovered these so-called "war infants" (Kriegsneugeborene) is put forward by a Charlottenburg doctor, who states that he has observed a distinctly new type of infant both in private practice and at welfare clinics. They are described as being not actually ailing but small, thin, delicate, backward in growth, with a wrinkled skin suggestive rather of old age then infancy. They are not prematurely born, as the description given would suggest, but underdeveloped at the time of birth. A constant restlessness accompanied by automatic grasping movements was noted as a characteristic feature of this type of infant, and the condition is attributed to the anxiety and nervous strain endured by the mothers, as well as to the restricted diet of insufficient and unsuitable food. The subject was discussed in various journals, but the majority of writers held that the existing war conditions had not produced a special type, though many admitted that the general increase in the number of excitable infants, and that a larger proportion were below the usual weight, developed slowly, and were reared with difficulty.—The *Medical Officer*.

GOITER IN THE SOUTHEAST*

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This paper is based on a routine systematic study of 407 patients with thyroid enlargements, somewhat less than half of whom have come to operation. The observations recorded in the histories have been made by myself, so that the information possesses whatever of merit may attach to personal responsibility, and lacks whatever of incertitude may result from multiple personal equations.

The particular points covered in the histories are some thirty-five in number and, of course, only a few can be commented on in this paper. For the most part the facts do not differ materially from those recorded respecting goiters everywhere. The outstanding features of the exophthalmic type—tachycardia, weakness, loss of weight, nervous instability, cardiac and renal disturbances, lymphocytosis, menstrual irregularities, fluctuation of symptoms, etc.—all run approximately true to recognized form. Among sixty-six patients in this class we have noted only two instances of skin bronzing, and only two instances of the severe vomiting and diarrhea that may accompany acute hyperthyroidism.

CLASSIFICATION

Speaking for myself, I confess that in classifying goiters a certain degree of equivocation cannot be escaped, no matter on what basis the task is undertaken. About three years ago I began to list my patients as carefully as possible under the groups suggested by Wilson and Plummer, whose classification takes into consideration both symptoms and histology. In this effort, as anticipated, quite a large margin of error cannot be denied, since the test of tissue examination, of course, could not be applied when operation was not done. When tissue was removed the agreement between the preoperative and postoperative diagnosis has been rather gratifying, though I cannot claim the approach to infallibility that the larger experience of others may justify. Conscious, in addition, of the attack on thyroid hyperplasia as a factor in determining symptoms, I nevertheless have grouped my cases as in the accompanying tabulation.

CLASSIFICATION OF CASES

Group 1. Hyperplastic toxic (16 per cent.)		
A. With exophthalmos	54	
B. Without exophthalmos	12	
		— 66
Group 2. Nonhyperplastic toxic (18 per cent.)		
A. Chronic cardiac type	57	
B. With acute symptoms resembling Group 1	17	
		— 74
Group 3. Nonhyperplastic nontoxic (60 per cent.)		243
Group 4. Unclassified, doubtful, etc. (6 per cent.)		24
		407

I am inclined to believe that the reason the percentage of cases in Group 2 is smaller than the percentage reported by Plummer is that perhaps ultraconservatism in labeling patients as toxic has been practiced, rather than because there is a real difference here and elsewhere in the incidence of this kind of goiter. Many patients who might more correctly be classified under 2 A have been put in Group 3.

Adenomas and Cysts.—One hundred and forty-six (35 per cent.) of these goiters were adenomas. In

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Group 1 there were four (6.2 per cent.); in Group 2 there were thirty-three (45 per cent.); in Group 3 there were 108 (44 per cent.).

However, when there are eliminated certain thyroid enlargements which were regarded as trivial and symptomless (chiefly in young girls, all in Group 3), the percentage of adenomas is considerably increased, being then 64 per cent. in Group 3 and 43 per cent. of the total number of patients studied. The adenomas in Group 2 B (with acute symptoms resembling exophthalmic goiter) are 50 per cent., as compared with 40 per cent. in 2 A.

The number of thyroidal cysts is small, only six occurring in the series. I am, of course, not listing as cysts the condition of cystic degeneration so common in old goiters.

INCIDENCE

While there are not obtainable figures to show the percentage of people anywhere in the United States who have goiters, it is a matter of common and trustworthy observation that the percentage is smaller in the South than at least in many other parts of the country. In the region of the Great Lakes I have more than once seen 50 per cent. of the waitresses in a restaurant with struma. I believe that one meets, per hundred, from five to ten times more women on the street in Chicago with goiters than on the streets of the average southern city.

Race.—Only eighteen negroes (4.5 per cent.) are represented. I believe goiter is less common among negroes than among white people, but I think the difference is not so great as these figures indicate. The situation is largely explained by the fact that most of these are private patients, and by the further fact that a nontoxic goiter does not usually compel one to consult a physician, and the negro does not do it. These figures, it must be remembered, apply to a territory in which the proportion of white people is somewhat larger than that of colored people. Six of the eighteen colored patients had exophthalmic goiter. Ten of the remaining twelve had nontoxic adenomas. Only one colored patient was listed in Group 2.

Sex.—This list includes only twenty-five males, 6.25 per cent. of the whole series. I think this represents the approximate truth as to local sex incidence. In Group 1 (exophthalmic) there were three (4.6 per cent.); in Group 2 A (toxic nonexophthalmic with chronic symptoms), one (1.4 per cent.); in Group 3 (nontoxic) sixteen (6.6 per cent.), of which twelve were adenomas. The diffuse nontoxic thyroid so common among young women is almost unseen among men. Four male cases were not classified clearly.

Relatives.—The inquiry included aunts and cousins. Ninety-five (23.5 per cent.) of these individuals had one or more relatives with goiter, a result not very significant.

With the inquiry restricted to the immediate family, fifty-three patients (12.5 per cent.) had fifty-eight relatives with goiter. These percentages are naturally much lower than in localities in which goiter is more prevalent.

The sister of the patient has been more frequently affected than the mother. The history of a relative with goiter is only half as common among the toxic as among the nontoxic thyroids.

Water Supply.—I have been totally unable to associate goiters with drinking water as an etiologic factor. In the average family drinking the same water, only a single goiter has developed. In only two instances has it been found that the same well supplying more than one family has among those drinking its water a suspicious number of goitrous persons; and in those instances it was not possible to get the families concerned to boil the water for observation of the effects. Among the inhabitants of no particular county, and of no particular watershed, and of no particular major geologic formation in the state of Georgia does goiter, in my opinion, exist in a significant manner. All my patients in the state have been charted with particular reference to this point, with negative results.

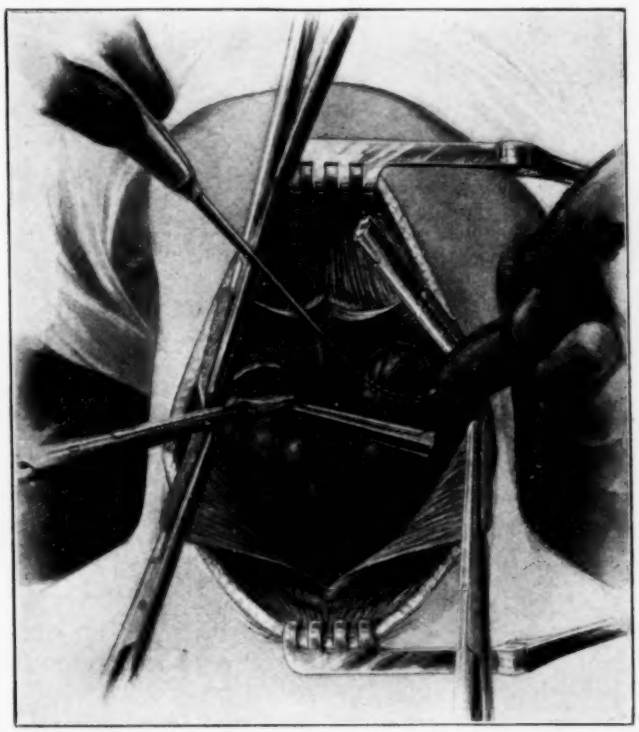

Fig. 1.—Ligation of upper pole before lobe is delivered. There is always between the thyroid cartilage and the pole a relatively avascular space through which the aneurysm needle may be passed. Not infrequently both upper poles may be thus ligated to advantage before either is resected.

POSSIBLE EXTRATHYROIDAL CAUSES OF SYMPTOMS

In Group 2, and frequently in Group 3, there are nervous instability, lack of sustained physical endurance, usually a spare build, frequent transient tachycardia without good reason, etc. Always the question arises whether there is a competent extrathyroidal source of the patient's complaints.

Careful questioning with a thorough physical inventory will not infrequently evolve the unbiased opinion that the patient's thyroid plays a minor, though perhaps real, part in the production of her disability.

Effort has been made to exclude these patients from the present series, but there are memoranda of doubt on the score of such troubles as family cares, worry about lost positions, financial reverses, suspected tuberculosis, prostration following pneumonia, etc., hereditary nervous instability, overwork, family infelicity, menopause, pellagra, nephritis, rheumatism, chorea and pelvic disease.

Recently I believe one may add to his ability to affirm or deny the major participation of the thyroid by the use of the Goetsch test—a significant prompt exacerbation of hyperthyroid symptoms being produced by the injection of epinephrin if the thyroid is really overactive.

PELVIC DISEASE

As to pelvic disease, there is nothing significant in the histories of patients in Group 3, though the incidence at puberty (and perhaps at the menopause) proclaims the relation between the thyroid and the female sexual glands. In view of the current loose idea that menstrual activity influences the size of a thyroid already enlarged, and in view of the further fact that women are inclined to look for abnormal phenomena in connection with any organ or function during menstruation, it is rather surprising that only 12 per cent. of these women believed that there was

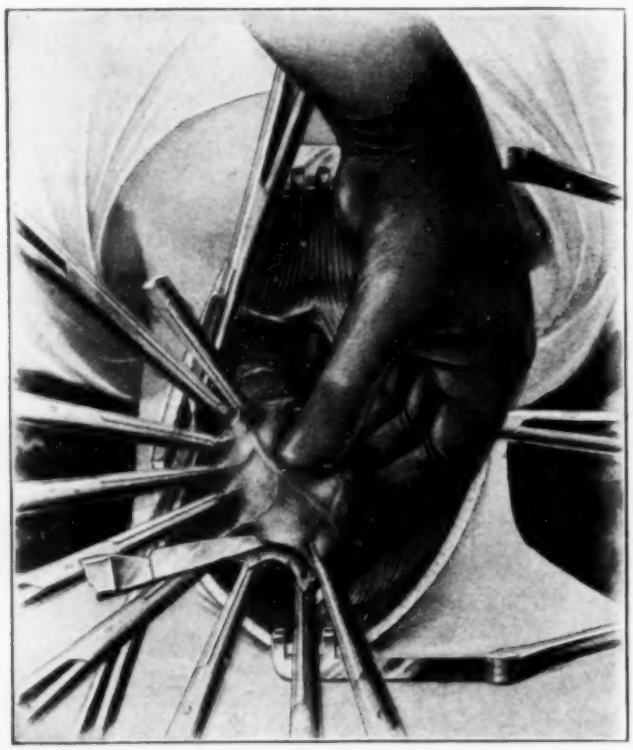

Fig. 2.—Lobe released at upper extremity. Incision should not go entirely through gland at this point.

any change in the size of the growth during the menstrual period. Furthermore, in Groups 1 and 2, a judicial analysis of the information that has been gathered with special reference to this point at the time when the histories have been taken does not justify the statement, so far as these patients are concerned, that goiter is a special consequence of pelvic disease.

Except for the fact that thyroid hypertrophy is admitted frequently to accompany increased ovarian activity, and that increased ovarian activity may be a part of pelvic disease, I see no significant sequence of goiter on pelvic disorder as compared with the sequence of goiter on any other debilitating affection such as pneumonia, nephritis, pellagra, rheumatic fever or tonsillitis. Indeed, even without invoking the interrelation of the ovary and the thyroid, I doubt if the number of goiters following pelvic disorder is suggestive of anything except that thyroid enlargement may follow any severe or prolonged physical or mental tax.

It is true that of the women in Groups 1 and 2, 31 per cent. gave a history of some sort of pelvic disorder ranging from dysmenorrhea and simple retroversion to pus tubes and fibroid tumors. This, however, must not be interpreted as too significant. In Group 1 all the women included in the 31 per cent. just mentioned were married and most of them had borne children; and in Group 2 nearly all were married. It is probable that 31 per cent. of any considerable group of married women will have some sort of pelvic trouble, so that the number of goitrous women in this series with antecedent pelvic disorder cannot be said to be suggestive.

RELATION BETWEEN APPEARANCE OF GOITER AND APPEARANCE OF SYMPTOMS

Group 1. The average age at which the goiter was first noticed is 27.8 years. More than 50 per cent. appeared before 25; 20 per cent. appeared before 18, and an additional 7 per cent. are thought to have appeared at puberty, disappeared, and reappeared at ages ranging from 26 to 49.

The average at which the patients began to notice symptoms was 30.35, or 2.55 years after the appearance of the goiter. This period, however, is not usually so long as the figures seem to prove. If we disregard seven patients who gave this period of comparative immunity as being from 5 to 29 years, it is discovered that there is somewhat less than twelve months intervening. Indeed, in the average case of exophthalmic goiter the time is shorter still.

Thirteen per cent. of this class thought the symptoms antedated the enlarged thyroid, while 35.5 per cent. thought the goiter and the symptoms appeared simultaneously.

Group 2. The average age at which the goiter is thought by the patient to have appeared is 24½ years. Nearly 50 per cent. appeared prior to 18, and symptoms developed from a few months to seventeen years later.

The average age at which symptoms began to be noticed was 28 plus, three and one-half years after the first known presence of the goiter. This period would be lengthened if we included in this class a number of patients who may clinically belong here, but who have been listed as nontoxic under Group 3. It is also to be remembered that since in this group the symptoms develop gradually, the patient is frequently unable to fix on a date since which her health has been definitely impaired.

MAXIMUM RESECTION

From the beginning of my experience I have followed the plan of resecting both lobes in diffuse enlargements. Only on rare occasions has this rule been disregarded, and then because, when operation had been undertaken on a bad risk, it seemed unwise to tax the patient with resection of the second lobe. And, proceeding on the idea that in toxic goiter the patient is suffering from altered secretion or too much secretion, there has been no hesitation to sacrifice a maximum amount of tissue on both sides. Acting under this plan I have not yet had to operate on a patient the second time. Those few patients whose second lobe was left deliberately, though reluctantly, have not improved to the degree desired, but have become so

much better that they have uniformly declined a second operation. Furthermore, the conviction that the improvement in these patients compares unfavorably with that of those who have had the desired ideal amount of tissue removed cannot be escaped. This statement comprehends the assumption that these few

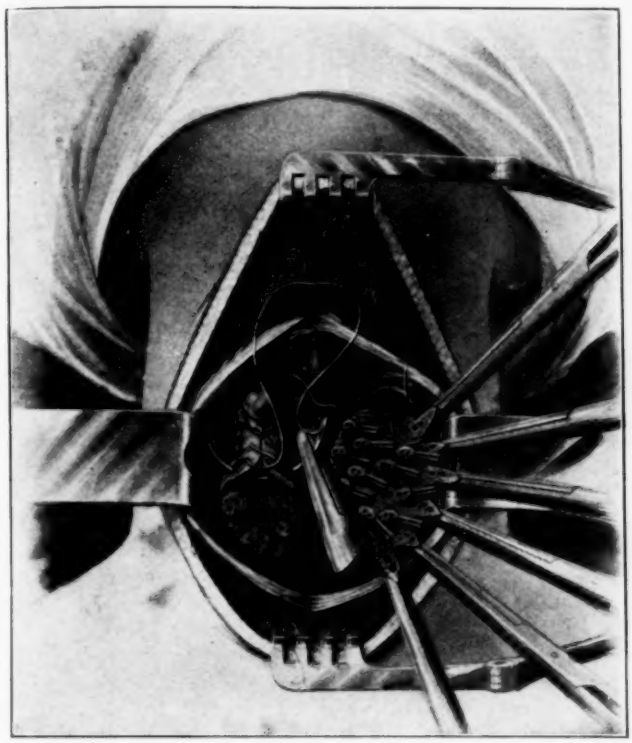

Fig. 3.—Most of the forceps shown can be set before the vessels are cut. Most regurgitant bleeding can be kept under reasonable control by the hand that holds the lobe as the resection proceeds. Covering cut surfaces as indicated in the right lobe is desirable but cannot always be practiced.

patients were, as a class, the most seriously affected by the disease, and therefore might be expected to get the least benefit from any treatment.

Pursuit of this plan has not, in my cases, produced any instance of the least suspicion of postoperative myxedema, nor has it produced in any patient a permanent loss of voice; in fact, in only one person with this particular kind of thyroid enlargement has temporary aphonia resulted. The only patient in the list with some symptoms of postoperative tetany had enormous bilateral adenomas; so that this single occurrence cannot be urged against the procedure in diffuse enlargements or, indeed, against the principle in general.

SUMMARY

1. The incidence in the Southeast of the several types of goiter departs in no significant way from the incidence in other areas where thyroid troubles are not definitely endemic. Sixty per cent. of all goiters are listed as nontoxic; excluding from consideration the symptomless goiters of puberty, 64 per cent. of the nontoxic goiters are adenomas.

2. Goiter in this territory is relatively rare; the colored race exhibits less tendency to a pathologic condition of the thyroid than does the white race; men are less frequently affected than published figures indicate; the occurrence of nontoxic goiters in families is suggestive, but not significant; no particular water supply is under suspicion.

3. There appears in this series no significant relation between pelvic disease and a pathologic condition of the thyroid.

4. Maximum double resection in diffuse enlargements is wise.

TEMPORARY LOSS OF VOICE FOLLOWING THYROIDECTOMY *

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The temporary loss of voice following thyroidectomy is a complication that gives the surgeon in his early thyroid work an untold amount of anxiety and worry. There are several distinct causes of this complication, which if appreciated by the operator will greatly lessen the liability of its occurrence; but in spite of this, the experienced surgeon will occasionally be greatly disturbed by one of his patients who loses her voice after operation, and who is husky or speechless for months following.

The causes of temporary loss of voice may be put under four headings: (1) trauma to the inferior recurrent laryngeal nerves; (2) trauma to the larynx and trachea; (3) syphilis, and (4) hysteria.

Trauma to the nerve should be prevented whenever possible—trauma that is caused by pinching with clamps; including the nerve by suture in tying off vessels or catching it in suturing; and stretching the

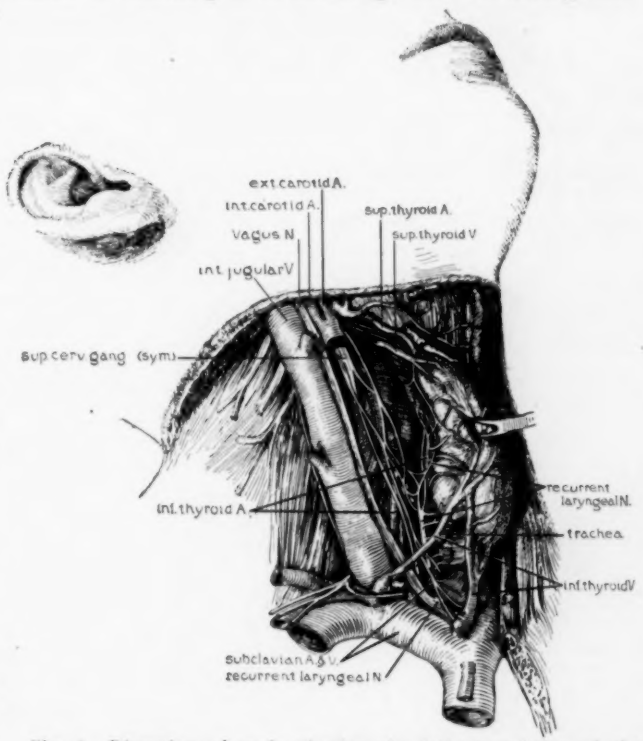

Fig. 1.—Dissection of neck, showing the intimate relation of the recurrent laryngeal nerve to the inferior thyroid artery. The gland has been pulled toward the midline to expose the nerve

nerve in its sheath, causing postoperative edema and by pressure from postoperative blood clot.

To avoid the nerve, the anatomy of the part must be well known. The thyroid gland is entirely enclosed

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by a fibrous capsule which divides posteriorly into two layers, one passing behind the esophagus to unite with the layer from the opposite side, and the other between the trachea and the esophagus. The recurrent laryngeal nerve arises from the pneumogastric nerve, and passes up by the side of the trachea behind the gland and its capsule and next to the esophagus to enter the

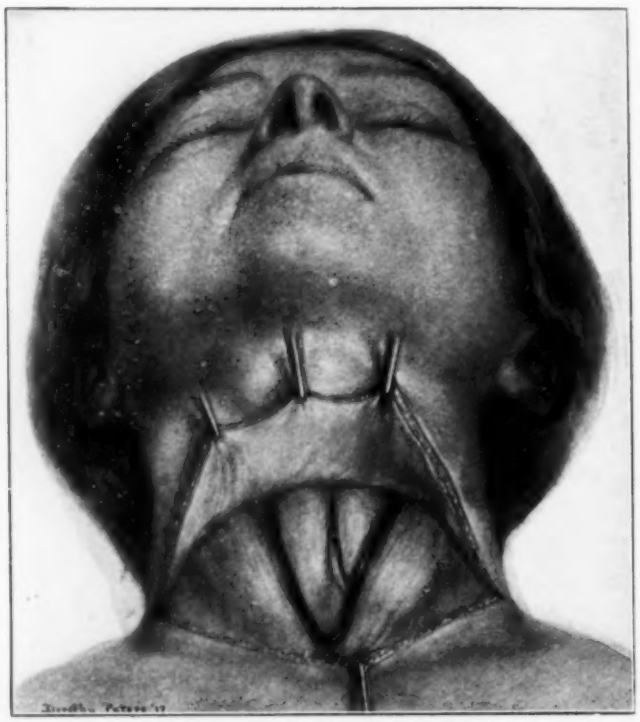

Fig. 2.—A broad collar incision for exposure

cricothyroid membrane. On the right side the nerve is intimately associated with the inferior thyroid artery, passing either under or over it. On the left side it is somewhat deeply placed and less often associated with the artery.[1] The nerve on the right side, therefore, is in more danger of being injured than the one on the left (Fig. 1).

To avoid the nerve, the dissection should begin well up on the side of the gland and not down underneath it. The vessels are clamped as they enter the capsule of the gland, and if the nonvascular zone described by Crile is entered, it is surprising how the gland may be dissected out of its bed with little loss of blood. It is important always to stay well within the capsule of the gland, because the nerves lie behind it. In attacking the lower poles of the gland, the forceps should be placed high up on the gland parallel with the long axis of the neck. Judd often includes some of the gland with the vessels in this step of the operation (Fig. 5). Any rough handling, forcible delivery of the gland, or dry gauze dissection in this region should be avoided, for it is here that trauma to the nerve takes place.

In case of severe hemorrhage, it is unwise to attempt to catch the bleeding vessels in a pool of blood. The vessels themselves should be found and clamped individually. If the gland has been resected, as Balfour[2] advises in large colloid goiters, it is well to remember the close proximity of the nerve to the lower pole and to the posterior surface of the gland, and make sure that the nerve is not caught in the lock sutures.

Judd, Mann, and New[3] have shown that the function of the vocal cords in dogs is permanently lost by section of the nerves. Pinching the nerve directly by hemostats caused temporary loss of function, the length of time varying with the distance of the trauma from the larynx. They also found that if the nerve was ligated with any form of suture material, the function would never return. Pressure from postoperative blood clot also caused suspension of function; but putting the nerve on forcible stretch, temporary or permanent, had no effect on the function of the vocal cords. I cannot believe that stretching the nerve is not a factor in causing temporary loss of voice. We have all seen patients who talked well for a few hours or a day after operation and who showed no symptoms of postoperative tracheitis, lose their voice on the second day. This I have always interpreted to mean edema in the sheath of the nerve with interference of its function.

Trauma to the trachea and larynx is followed by tracheitis and laryngitis and is frequently cause for temporary loss of voice, especially in apprehensive patients. The extent of the tracheitis varies with the amount of the trauma, and it is important to subject the trachea to the least amount of traction and injury during the delivery and the dissection of the gland. It is not wise to deliver or dissect out the thyroid in one set way. A trachea that has been encroached on by an enlarged gland will not stand the same amount of lateral pressure as one that has not been encroached on.

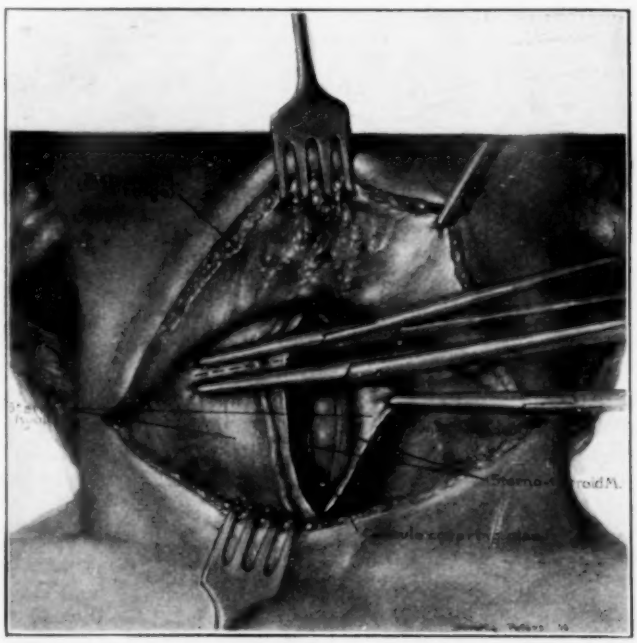

Fig. 3.—Sternohyoid muscle to be cut along line of dashes. Double trap door is often made for greater exposure by cutting sternohyoid of opposite side.

The surgeon should rely on the services of a skilled anesthetist in these operations, for the anesthetist's judgment of the patient's color and breathing should guide him as to just how much traction he may employ with safety or whether he should lessen the amount he

1. Mayo, C. H.: Collected Papers by the Staff of St. Mary's Hospital, Mayo Clinic, 1905-1909, p. 419.
2. Balfour, D. C.: Advantages of Double Resection in Certain Types of Goiter, Ann. Surg., May, 1914.
3. Judd, E. S.; Mann, F. C., and New, G. B.: Ann. Surg., 1913, **67**, 257.

is already using. To prevent stretching the nerve it is best to deliver glands from above downward whenever possible (Fig. 4). If this cannot be done it should be attempted laterally or from below upward —any way to safeguard the trachea. Substernal

Fig. 4.—Delivery of the gland from above downward to prevent stretching of nerve.

growths cause anxious moments until they are delivered. Substernal cysts can often be punctured with safety and delivered easily. It is often better to begin the dissection of large colloid goiters with much lateral encroachment from the midline at the isthmus rather than laterally or from either pole (Fig. 6). This method is more difficult and more vascular, but it saves the trachea from an undue amount of trauma. In dissecting the gland off the trachea itself it is better to leave some of the isthmus rather than to do a clean dissection down to the fascial covering (Figs. 7 and 8). Many glands are firmly adherent to the trachea and are separated from it with great difficulty. It is an easier dissection to leave a small amount of gland on the trachea in the average case, although in the hyperplastic gland the bleeding may be hard to control. Tracheal trauma is a common cause of temporary loss of voice. It adds much to the patient's discomfort, and in the severe case it may be a factor in producing postoperative pneumonia. Free exposure is important, and it is often necessary to turn a double trap door of the sternohyoid muscles or even to cut some of the fibers of the sternomastoid to obtain it (Figs. 2 and 3).

It is wise to have a laryngoscopic examination made of all patients before and after operation. Unilateral abductor paralysis or lagging of one cord may be found in patients with goiters of long standing that have caused pressure on the nerve. The surgeon in justice to himself should tell these patients not to expect any improvement in their voices after operation. New believes a bilateral abductor paralysis to be of syphilitic origin and that a bilateral adductor paralysis is due to hysteria. This has been borne out several times in my work. To cite a case:

A woman, aged 45, with a small goiter, complained of tracheal pressure, interference with speech, and difficulty in breathing. I knew her to be syphilitic and operated on her against my better judgment. She talked well after operation, but had a complete loss of voice one week later, because of a bilateral abductor paralysis. Six months after operation her breathing became so seriously interfered with that a tracheotomy had to be performed. Later I sent her away for consultation, and a well known man wanted to eviscerate her larynx, believing the paralysis to be due to the cutting of both laryngeal nerves. I knew this was not the case, for she had talked well after operation. Under a thorough and prolonged antisyphilitic treatment her voice has been fully restored.

Simonton[4] believes that many enlarged thyroids are of syphilitic origin and suggests that the improvement many of these patients show after taking potassium iodid may be explained in this way. Certainly it would be well to have a Wassermann test taken of all patients who have insignificant goiters but who complain of interference with speech.

I believe there is a strong hysterical element in many patients who lose their voice for a time following operation. We are well aware of cases of hysterical aphonia. Only a few weeks ago, the papers were full of the case of a well known singer who lost her speech completely after a severe nervous shock. Many patients come for operation with the fear that their voices will be lost after it. A surgeon working in a small community may have the wrong kind of suggestion to contend with. The thoughtless or unfriendly remarks of a laryngologist who examines a patient during the stage of temporary loss of voice may do much to intimidate a whole community about thyroid surgery.

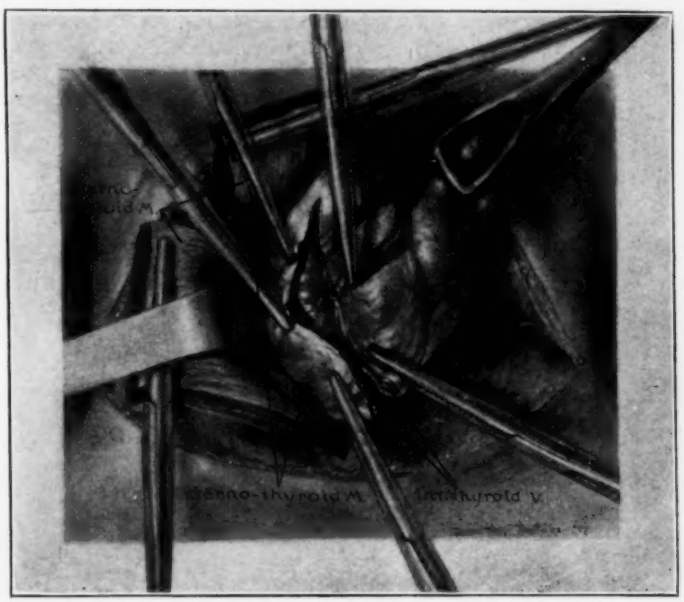

Fig. 5.—Treatment of vessels at the lower pole. A small amount of thyroid is included in the bite of the forceps.

4. Simonton, T. G.: Syphilis as a Factor in Diseases of the Thyroid Gland, Pennsylvania Med. Jour., 1918, **21**, 293.

I maintain that many of our patients, who are fearful before operation, awaken after it to find speech painful and difficult, and they send strong impressions to their subconscious minds which make speech impossible for a given time. Much of this preoperative fear can be allayed by the proper kind of suggestion from

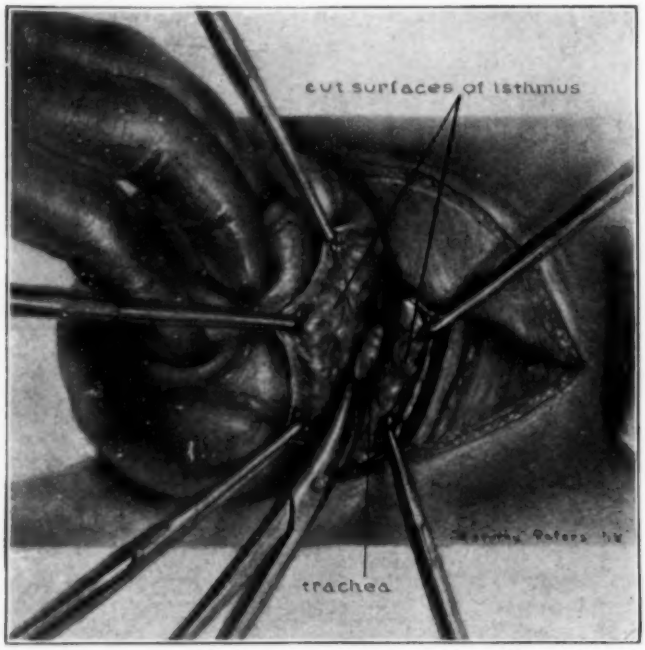

Fig. 6.—Dissection of gland, beginning at isthmus to safeguard trachea

the surgeon and his associates. This psychologic team work applies more especially to the management of bad types of hyperthyroidism, but it may be applied in all goiter cases with advantage. The anesthetist can give valuable suggestion to the subconscious mind during the early stage of anesthesia. Our nurses are trained to make all of our thyroid patients talk in their drunken ether state. They must be made to articulate some word. This is carefully noted on the chart, and should the patient lose her voice it is of no source of anxiety to any of us. Occasionally it is impossible to get a patient to talk immediately after operation, and these are the patients who do worry us—but I know of no patient of mine who has had any permanent disturbance with speech.

The postoperative laryngoscopic examination is of importance, for if bilateral adductor paralysis alone is present it is surely due to hysteria. Most of the patients recover within from a few weeks to a few months with the proper kind of suggestion, but the rebellious case may worry the surgeon and startle a community for the time being. All forms of suggestion have been employed from the mildest to the hypnotic. It is often necessary to treat the patient's family as well as the patient. We use repeated laryngoscopic examinations with assurance, the battery, the therapeutic lamp, and gentle massage to the muscles of the neck. In the purely hysterical type there is complete restoration of voice as soon as the patient can be convinced that she can talk. Judd tells of a patient who feared she would lose her voice after operation, which she did for months. She believed that if an adhesion was loosened in her neck her voice would return. She was anesthetized, the muscles of her neck were massaged. Her voice returned at once. Sistrunk had a patient who was given mild anesthesia and was merely assured while going to sleep that her voice would return. She talked as soon as she awakened. One of my rebellious patients had to be hypnotized twice. Another, whose family could not be convinced that permanent damage had not been done, was made to relax the muscles of her throat, and take a deep inspiration with her mouth open. She made a loud crowing sound. Her mother who was present cried out, "Her voice has returned." She was able to talk at once.

Communications from different men doing thyroid surgery show an average of from 3 to 5 per cent. of cases of temporary loss of voice, and from 20 to 50 per cent. of huskiness following their operations. I have had 20 per cent. of huskiness and 3 per cent. of temporary loss of voice since employing the methods herein described. This is a much smaller number than I formerly had when I did not carry out measures to safeguard the nerves and the trachea from trauma and did not consider hysteria as an element in producing the complication. These conclusions are based on a clinical study of 1,102 goiter patients, 619 of whom were operated on.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. MAYO, JONES AND GUTHRIE

Dr. Charles N. Dowd, New York: The development of the various phases in the treatment of goiter has been very interesting. Many of us remember when patients with distinct symptoms of exophthalmic goiter were not considered suitable for surgical treatment. In the intervening years, however, we have learned much of the natural history of the disease, hence can better select the treatment which is best suited to each case. Surgical technic has also improved, hence operation is now successful in numerous instances in which formerly the patients would have succumbed. Paitents who suffer merely from pressure symptoms will be cured by removing the adenomas which cause the pressure.

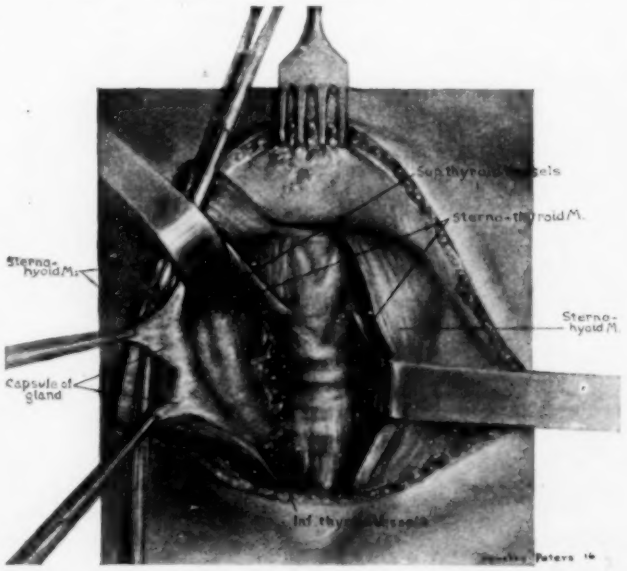

Fig. 7.—Former method of removing gland from trachea. Note that the trachea is bared to the fascial covering.

Dr. Jones called attention to the problems found in different parts of the country. One's attitude will depend largely on the type of cases seen. In New York we see a large number of the intermediate type of goiters which present moderate toxic symptoms in the course of chronic thyroid enlargement, even though these toxic symptoms have been lacking during the greater portion of the patient's history. These patients

form a very satisfactory group from the standpoint of surgical treatment for they make wonderful recoveries after moderate-sized operations. The real problem is to sort out those patients who have enough toxic symptoms to warrant surgical interference. The recent work which has been done in this line is most interesting. Kendall has done much to

Fig. 8.—Method now used whenever possible, leaving small amount of thyroid on the trachea.

make our knowledge definite. The epinephrin test, as advocated by Goetsch, is of great value in determining the toxicity of these patients. We have a guide to determine before operation, while the patient is under observation, which symptoms are due to the thyroid and which are due to other influences.

I was interested in hearing Dr. Jones say that he had not seen any cases of myxedema following the removal of a large portion of the thyroid. I have not so much fear of hyperthyroidism as I used to have. Patients who have lost a very large portion of their thyroid still do not show hyperthyroidism.

As to the technic in covering the raw surfaces, we have the choice of running the chance of nerve injury or of expecting a moderate delay in the final healing. If we sew the capsule edges too tightly, we increase the danger of nerve injury; if we leave the posterior capsule in its position and the cut surfaces of the thyroid uncovered by capsule, we will lengthen the period of convalescence.

. DR. ARBUTHNOT LANE, London, England: I feel rather in an awkward position. I feel ashamed to differ with my friend, Dr. Charles Mayo, who, with those at Rochester, has made this work notable and famous all over the world. I am sorry to say that I am in direct opposition to him. I would like to go into the cause of things: First, we have to consider three big organs—the thyroid, the spleen and suprarenal. These three organs, under the influence of strain produced by the fact that they are flooded by poisons, behave badly. For instance, the suprarenal produces Addison's disease. The bravest surgeon has not started to remove the suprarenal. The spleen produces pernicious anemia. Only yesterday I had the pleasure to be present at operation by Ochsner. He had a case of pernicious anemia. His principle was that he ought to remove the spleen, infected gallbladder and infected appendix. He claimed that he cured these patients and saved them from death. He starts at the wrong end. The cause of that infection is the large intestine. Like most surgery, this is the surgery of end results. The connection between the thyroid and the sex organs is intimate. It is well known that the men in India can tell in a moment whether their women have been tampered with by the condition of their thyroid. I have not removed the thyroid for a very long time. I have cleaned up the contaminated food supply; I have removed the large intestine, and then these enormous thyroids gradually grow smaller and disappear. Many of the American surgeons saw my patients in England, people who had had enormous thyroids. We removed the intestine, and the enlarged thyroid gradually became smaller. The cases not completely successful are the exophthalmic goiter cases. Enormous improvement takes place, but the disease is not obliterated completely. The food supply is the secret of disease. I am certain the more we go into the subject the more we will realize the contamination of our food supply and the immense amount of filth we are taking into our circulation every day through the small intestine. I do not think that you can have failed to notice that in Raynaud's disease, where the fingers and toes are gone, within twenty-four hours after operation the patient's reaction is normal. It shows that we are absorbing a large amount of poison from the small intestine; it

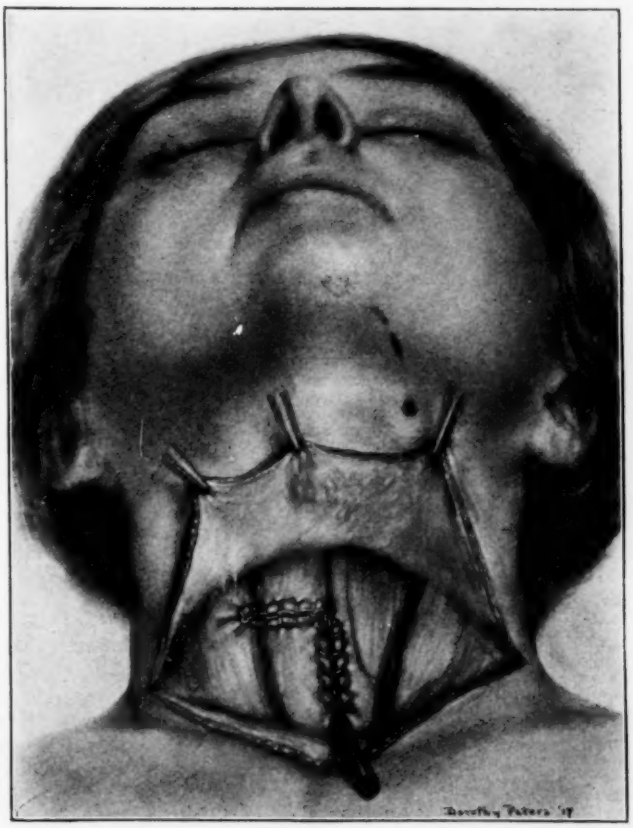

Fig. 9.—Closure of wound.

passes by the filtering organs and gets into the circulation. Mr. Garrison of India showed that he could produce goiter in various forms by feeding certain filth. He could produce a congenital condition affecting pregnant mothers and cure them by cleaning up the intestinal tract. Surgery has gone mad in that it is treating end results and not dealing with the primary cause. As we specialize we lose our common sense

by developing our special sense. I am not criticizing the beautiful work of Dr. Charles Mayo, but I think it is useless to remove the spleen, infected gallbladder and appendix to cure infection. It is based on a false principle. I am sorry to appear in the light of a heretic.

DR. MILES PORTER, Fort Wayne, Ind.: There is as much reason for removing a permanent goiter for fear it will

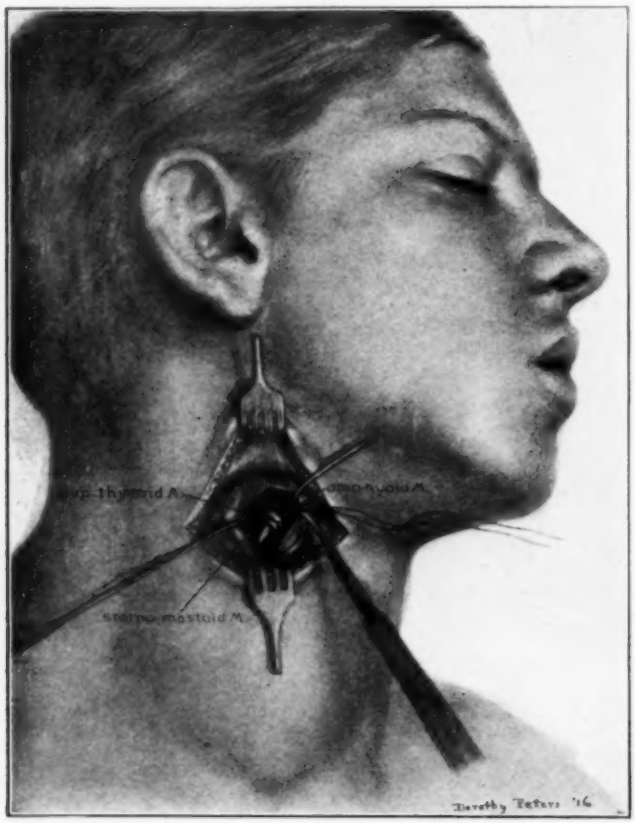

Fig. 10.—Single ligation of superior thyroid artery.

become toxic as there is for removing a mole or similar lesion for fear that it will become cancerous. I would like to emphasize the point that has been made, namely, that there need be little or no fear over the relatively total removal of the thyroid. I have seen a large number of cases in which I or my friends have had reason to regret the fact that they removed too little of the gland. I have yet to see one illustration of a too nearly total removal of the gland.

DR. ROLLO C. DUGAN, Ottawa, Kan.: There are cases in which we have to deal with the end results, cases which are so very bad that we can do but little, as in exophthalmic goiter, and I wish to call attention to two particular methods of technic in these very bad cases: One is the method of hot-water injection, which I think was originated by Dr. Porter. In the old and very feeble, there is no question but what they can be improved immensely with very little shock by the hot-water injection. The other method consists of breaking up of the areolar tissue around the thyroid destroying the lymphatic and nerve supply. It will produce miraculous results in some of these very bad cases. I had one patient who went on the table with the pulse almost uncountable; she had been vomiting continuously for over a month. I had her in the hospital for a week before operation trying to improve her condition. She acted so badly on the table that after I made the collar incision with the intention of removing part of the gland I became alarmed and simply broke up the areolar tissue around the gland. She improved immediately. I saw her again recently. Her pulse was 60, and she was driving her own car and doing the major part of the farm work, her boys having gone to the war. She had absolutely nothing done but the collar incision and the areolar tissue broken up around the gland.

DR. H. J. STEWART, Oak Park, Ill.: I understood Dr. Jones to say that epinephrin would transform a serious case of hyperthyroidism into a comparatively mild one. I would like to know more about that.

DR. C. H. MAGEE, Burlington, Iowa: I wish to say a few words on the anatomy of the gland. Dr. Guthrie showed a few cuts of the ligation of these arteries, and Dr. Mayo referred to the abundant supply of blood to the gland. In my work on the anatomy of the thyroid, I discovered one subject who had a rudimentary superior right thyroid artery and an absent inferior left thyroid. A subject like that might cause a little embarrassment to an operator. In regard to the inferior thyroid in its relation to the recurrent laryngeal: frequently the inferior thyroid runs posterior to the recurrent laryngeal. I have seen a number of subjects in which the inferior thyroid divided and embraced the recurrent laryngeal. I have also seen two subjects in which not only the inferior thyroid divided, but the nerves themselves divided and were interwoven like the canes of a chair. That would offer embarrassment to an operator. The late Professor Cunningham of Edinburgh lays down the dictum that the left recurrent laryngeal lies deeper than the right. I never yet could see the truth of that observation. Most anatomists in this country claim the same. I was pleased with Dr. Guthrie's discussion of the causes of the loss of voice. I believe in a great many cases it is hysteria more than anything else.

DR. EDWIN P. SLOAN, Bloomington, Ill.: I think we must admit that operation on the thyroid is relatively safe. Even those patients operated on by the beginners in thyroid surgery do well. You never see an unsatisfied patient. You see some who are not entirely well, not from the operation, but from the condition that the goiter brought about. I do not think that we ought to try so hard to sort out the different types of goiters. Every goiter is a menace to the patient, and every goiter means disaster some day, so the only question is whether the patient has goiter, and if so, how can we get the goiter out without killing the patient. A great deal too much importance is placed on the diagnosis of the different types, and how to prevent injury to the recurrent laryngeal nerve and a lot of other possible disasters that might occur

Fig. 11.—Double ligation of superior thyroid artery. High collar incision.

at the time of operation. A goiter operation is safe in the early stages of the disease. It is the most satisfactory surgical operation done today from the standpoint of the patient, consequently of the surgeon.

DR. CHARLES H. MAYO, Rochester, Minn.: Nature endowed us with an oversupply of nearly all of the important glands of the body, the hypophysis, suprarenals, the thyroid, and a reduction of 50 per cent. or more in the adult cuts very little

figure. The loss of the thyroid in the child makes an enormous difference. The vegetative existence of life is from 100 per cent. below normal, which is death, up to 40 per cent. below normal. Through this range of energy output the vegetative existence is carried on by the creatin body that we have just begun to learn something about. From 40 per cent. up to normal the energy output is carried on by the action of the thyroid. We have supply enough on hand from the thyroid to last from eighteen to twenty-one days. We eat food, take in protein, reduce it to sixteen varieties of amino-acids. These amino acids heavily loaded with nitrogen are then broken down liberating the nitrogen which is carried through various chemical forms, and through the action of the parathyroids it is eliminated as urea, in urine. If you break that chain at any point you interrupt one of the most important things in the body in the shape of metabolism. We eat certain foods which produce energy. We can tell exactly how much fuel is burned by the amount of oxygen taken into the blood. We know exactly the amount of carbonic acid and of urea thrown out. Through these studies one can test to an absolute degree the energy output of the body, the burn up of the food. Iodin is important. Give these young people who have large thyroids, iodin and down goes the thyroid. Iodin alone will not make a cretin normal or restore the myxedematous. Iodin passing through the thyroid will.

Sir Arbuthnot Lane may be right in his theory. He works on the lower end and we work on the upper end. Any break in the line of ductless glands means trouble. Admitting for the sake of argument that that break is produced by an infection in the intestine, which, in turn, produces a biologic change which acts on the thyroid. Having then started up the thyroid action, which is like a secondary fire, that fire must be put out. If Sir Arbuthnot Lane is correct, we can work on the thing stirred up by the action of the microbe in the intestine that has produced the secondary effect on the thyroid because otherwise your fire goes on. In the exophthalmic the burning is excessive, not only the protein, but the patients are eating twice as much as other people, and getting poor by burning up their store of protein and fat. That is what happens through the thyroid, and I believe today, from what knowledge we have and our ability to deal with it, it is best dealt with by acting on the gland itself, even though it is considered as a secondary agent.

DR. DONALD GUTHRIE, Sayre, Pa.: I am glad to hear Dr. Sloan say that in former days we attached too much importance to injury to the recurrent laryngeal nerve. However, the anatomic relations of the nerve to the capsule and lower pole of the gland should be emphasized. In the dissections we have made we have found the nerve winding in and out between the branches of the inferior thyroid artery. Trauma in the region of the nerve and trauma to the trachea itself should be avoided. The recurrent laryngeal nerve sends fibers to the trachea itself and loss of voice following trauma to the trachea may be explained in this way. I am convinced the less we traumatize the trachea the less disturbance of speech we will find after operation. It should also be remembered that occasionally a syphilitic patient will lose the voice following operation, but that the voice will be restored with proper antisyphilitic treatment.

DR. EDWARD G. JONES, Atlanta, Ga.: I merely reply to the inquiry respecting the Goetsch test. If a person has overactivity of the thyroid, and 0.5 c.c. of the standard 1:1,000 solution of epinephrin be injected, she will exhibit a much more marked reaction than will a normal person. Blood pressure, respiration, etc., having been noted when the patient is tranquil before the injection is made, it will be discovered that as compared with these preliminary readings there will be an elevation of blood pressure or pulse, or both, of ten points or more after the injection. The objective and subjective findings, such as increased tremor, coldness of hands and feet, throbbing, some apprehension, etc., are brought out quite perceptibly. The degree to which these phenomena attain will be governed by the degree of hyperthyroidism. Taken altogether, the injection of epinephrin will induce an exacerbation of a typical real hyperthyroid syndrome, the attack thus precipitated lasting perhaps an hour and a half.

HYPOPHYSIAL TUMORS THROUGH THE INTRADURAL APPROACH *

A. W. ADSON, M.D
ROCHESTER, MINN.

My attention was first called to the intradural approach for the removal of hypophysial tumors by Dr. G. H. Heuer of Johns Hopkins Hospital. Dr. Heuer showed me two patients on whom he had operated by this method. I shall not discuss the surgical indications of hypophysial disorders; but in the group of cases in which there were visual disturbances, the improvement following operation has been so marked that we feel that special attention should be called to the surgical treatment. Six patients have been operated on, and drawings are presented which show the tumors in place before their removal. The physiologic and surgical indications of hypophysial

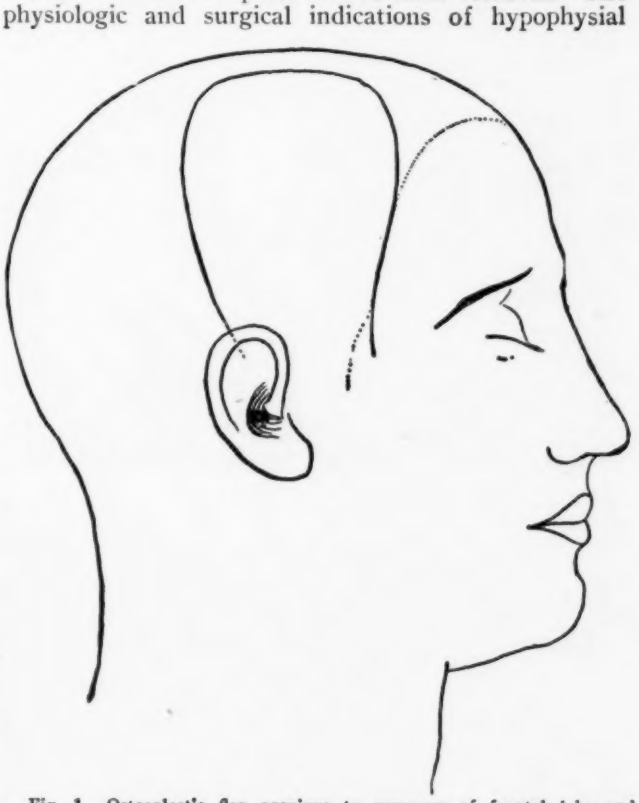

Fig. 1.—Osteoplastic flap previous to exposure of frontal lobe and pituitary gland.

tumors have been described by Cushing.[1] Frazier[2] has called attention to three surgical indications: (1) subtemporal decompression for the relief of pain; (2) decompression of the sella turcica or removal of the tumor for visual disturbances, and (3) operation on the pituitary body for amelioration of hyperpituitarism.

The first successful hypophysial operation was performed by Schloffer[3] in 1907 through the extracranial transsphenoidal approach. Several modifications of this technic have been made by Hirsch,[3] von Eiselsberg,[4] Cushing,[1] Kanavel[5] and others. In 1893, the

* From the Mayo Clinic.

1. Cushing, Harvey: The Pituitary Body and Its Disorders, Philadelphia, J. B. Lippincott Company, 1910.
2. Frazier, C. H.: Lesions of the Hypophysis from the Viewpoint of the Surgeon, Surg., Gynec. and Obst., 1913, **17**, 724-736.
3. Quoted by Frazier, C. H.: Ann. Surg., 1913, **57**, 145-150.
4. Quoted by Frazier (Footnote 2).
5. Kanavel, A. B.: Cysts of the Hypophysis, Surg., Gynec. and Obst., 1918, **26**, 61-70.

subtemporal operation by the intracranial method was done by Thus,[6] Caton and Paul.[3] Krause,[3] in 1905, and Hartley and Kiliani[3] in 1904, attempted to expose the hypophysis by bilateral osteoplastic frontal resection and ligation of the longitudinal sinus. Kiliani suggested opening the dura as soon as the osteoplastic flap was removed. Frazier,[7] in 1913, described the transfrontal approach, which differed from the technic of McArthur[8] in that the osteoplastic flap was turned in conjunction with the resection of the roof of the orbit. In both the McArthur and the Frazier operations the dura was raised with the frontal lobe and not opened until the anterior clinoid process was approached.

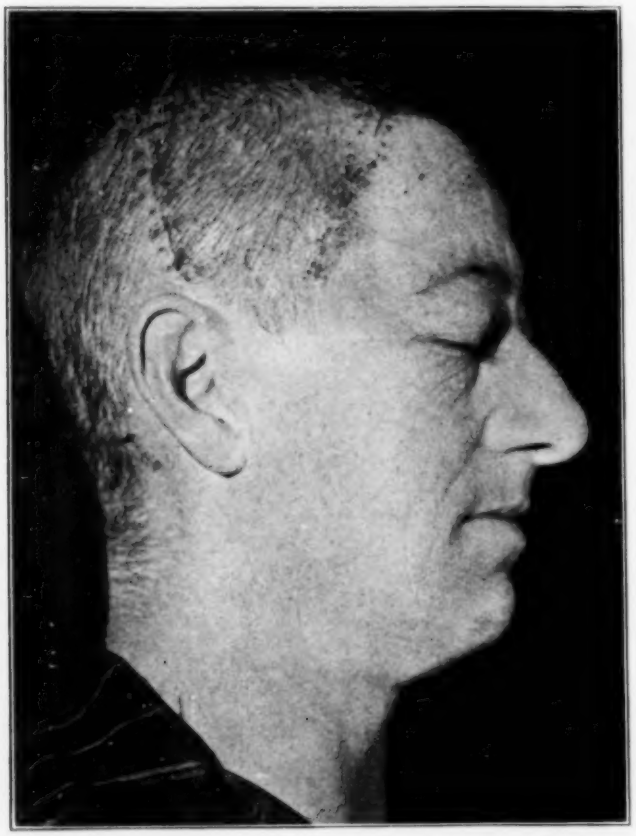

Fig. 2 (Case 4).—Operative scar, eight days after operation, showing its relation to the hair line. No paralysis of the occipitofrontalis muscle.

TECHNIC

The technic herein described is of an intradural approach after an osteoplastic flap has been turned from the right frontoparietal region. The dura is opened widely to permit the exposure of the frontal lobe, which is protected with cotton and rubber tissue. The lobe is then elevated gently until the optic commissure and the hypophysis are exposed.

The patient is anesthetized by the inhalation drop method and placed on the operating table at an angle of 80 degrees with the horizontal plane. The head is held back in a position to permit the natural gravitation of the frontal lobe from the anterior cranial fossa. The anterior limb of the osteoplastic flap corresponds to the margin of the hair line, and this affords three-fourths inch of space posterior to the external angular process of the orbit, thus preventing injury to the motor branch supplying the frontal division of the occipitofrontalis and guarding against any paralysis of the muscle. The incision is carried upward to the median line three-fourths inch from the longitudinal sinus; it is then extended backward for a distance of 3½ inches and downward over the parietal eminence to a position above the middle portion of the ear (Figs. 1 and 2).

The bleeding in the flap is controlled by the application of a pedicle clamp[9] at the base of the flap (Fig. 3). The bleeding in the scalp, aside from that in the flap, is controlled by the application of forceps to the aponeurosis (galea) one-half inch apart and turned outward to compress gently the margin of the skin. The forceps are tied in groups and left in position during the operation (Fig. 3). The bone flap is turned by the use of the Hudson drill (the de vilbiss) on the sides and the gigli saw on the upper margin. This produces the beveled effect which assists in holding the flap in place as a lid.

After the dura has been exposed, a flap is made to permit the exposure of the frontal lobe, but it is made at right angles to the osteoplastic flap, which has been broken in the region of the temporal bone and turned downward. The dural flap is permitted to remain in position and to cover the cortex of the brain, and the frontal margin is raised by tension sutures of silk.

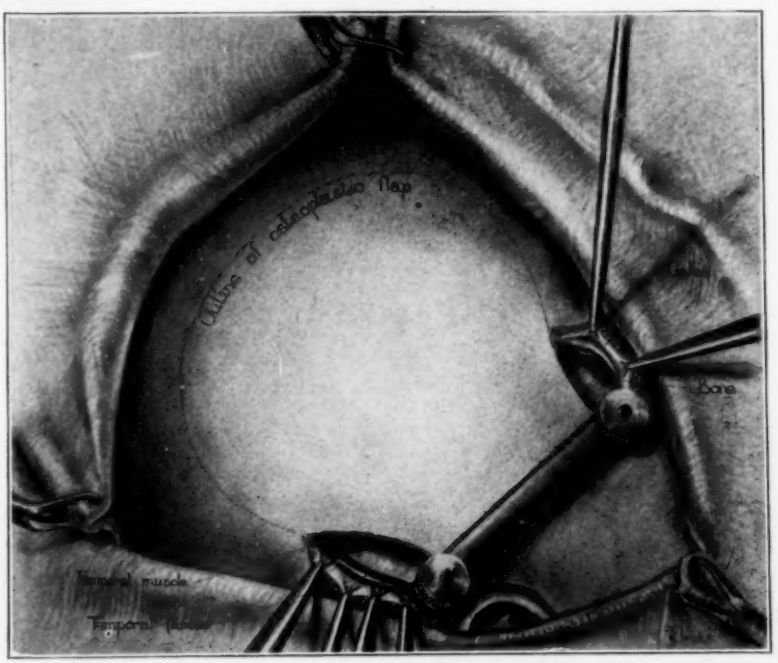

Fig. 3.—Pedicle clamp to control bleeding in the osteoplastic flap. Forceps on the aponeurosis to control bleeding along outer margin of incision.

The brain substance, as well as the exposed dural surface, is covered with warm, moist cotton, which, in turn, is covered by rubber tissue (Fig. 5).

6. Quoted by Cushing, Harvey: The Pituitary Body and Its Disorders, p 295.
7. Frazier, C. H.: An Approach to the Hypophysis Through the Anterior Cranial Fossae, Ann. Surg., 1913, **57**, 145-150.
8. McArthur, L. L.: An Aseptic Surgical Access to the Pituitary Body and Its Neighborhood, The Journal A. M. A., June 29, 1912, pp. 2009-2011.

9. I am indebted to Dr. Hever for the method of applying the pedicle clamp.

In the elevation of the frontal lobe, rubber tissue strips are placed gently over the convolutions in a shingle effect in order to give a uniform pressure over the cortex as it is elevated by the retractor[10] (Figs. 5 and 6). There is very little difficulty with bleeding during this process; occasionally there is a small venous communication between the cortex and the dura. With gentle manipulation the optic commissure and the hypophysial body are readily exposed. Important landmarks during the elevation of the frontal lobe are the anterior cranial fossa, the margin of the lesser wing of the sphenoid to the anterior clinoid process, the right optic nerve, and the internal carotid artery. The procedure is then carried on mesially until the commissure as well as the left optic nerve and the hypophysial body are brought into view (Fig. 7). A gentle dissection of the tumor is then begun with blunt hooks to free it from the commissure, nerves and surrounding tissue. Usually the tumor is definitely encapsulated, and if freed from the constricting bands, it is readily elevated. In case there is slight bleeding, it is controlled by very small pledgets of cotton guarded by long strings of silk to prevent their loss. As the tumor is freed from the surrounding structures (Fig. 8), a septile snare is applied to its pedicle, which is gradually constricted to control the bleeding and to remove the tumor mass (Fig. 9). The further removal of the pituitary body from the sella turcica may then be continued.

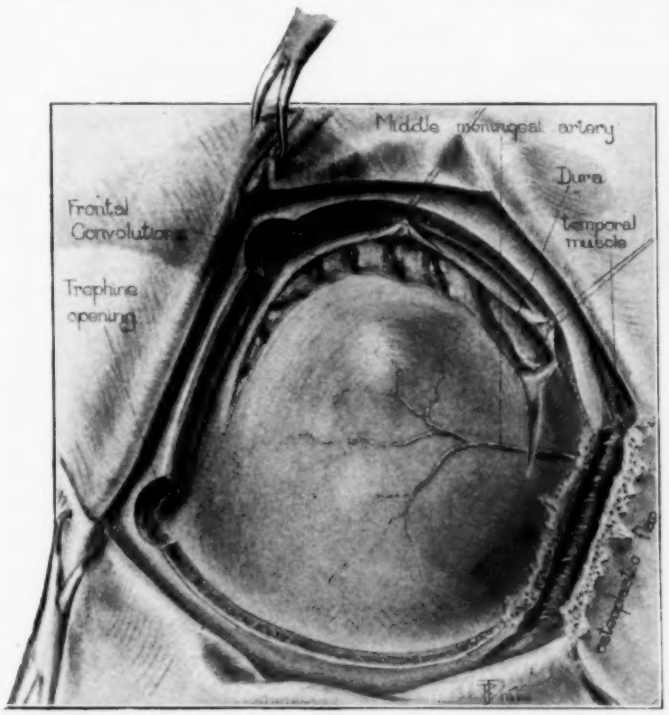

Fig. 4.—Exposure of the dura, which is divided along its anterior margin to permit the exposure of the frontal lobe.

REPORT OF CASES

CASE 1. (201188).—Mrs. J. J. L., a housewife, aged 50, examined, July 18, 1917, for the past fifteen months had noticed a gradual failing in vision, particularly a narrowing of the temporal fields. She was unable to see approaching objects from the side. She also complained of marked dyspnea. The general examination was negative except for hypertension. The systolic blood pressure was 210, the diastolic 114. The urine, blood and Wassermann tests were negative. The combined functional phenolsulphonephthalein test was 60 per cent. in two hours. The roentgen examination of the head revealed the sella to be moderately enlarged. The nerve heads of the eyes were slightly pale, the physiologic cup deep and broad, and the arteries small. The tension by the Schiötz tonometer was 18 in both eyes. The left temporal field presented an absolute hemianopsia with constriction on the nasal side. In the right temporal field there was hemianopsia except for a slight vision on the lower temporal margin. The nasal field was quite normal. Operation was performed, Aug. 22, 1917. On exposure of the hypo-

Fig. 5.—Elevation of the frontal lobe with the insertion of rubber tissue strips, which are applied as a protection to the brain cortex.

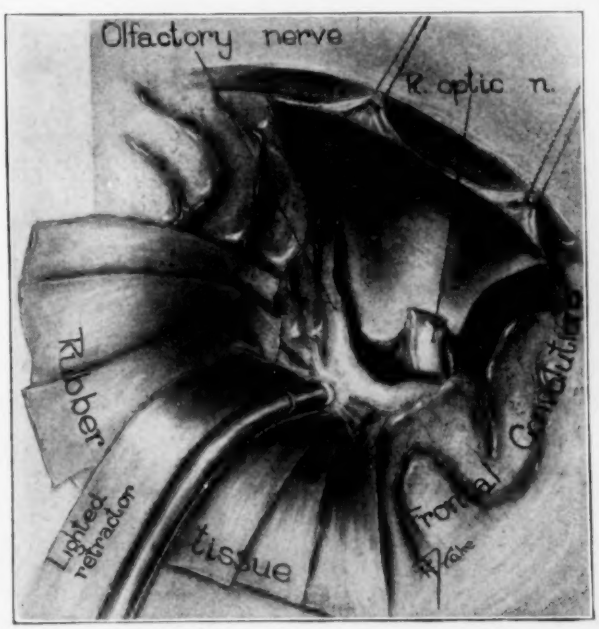

Fig. 6.—Elevation of frontal lobe, exposing right olfactory nerve and right optic nerve prior to exposure of pituitary tumor.

10. This retractor is arranged with a small laryngoscopic light which illuminates the region of the optic commissure much better than a reflector or head light. The retractor is similar to the one used by Frazier. We have also made a curet forceps to scoop out the cellular tissue from the sella.

physial region, a pituitary tumor about an inch in diameter, soft but well encapsulated and bluish gray in appearance, was found. The tumor was situated in the sella and seemed to rise under the left optic nerve. On removal of the mass some erosion was noted in the right margin of the sella. About one fourth of the normal gland was left in the sella. The patient's postoperative convalescence was uneventful. Eight fields were made from the time of operation until September 29, when there was a complete return of normal object as well as color fields. In a letter from the patient three months after the operation, it was stated that vision was still perfectly normal (Figs. 7 and 8).

CASE 2 (207683).—Mrs. A. E. S., a housewife, aged 28, examined, Oct. 11, 1917, complained chiefly of blindness, most noticeable in the left eye, and with a gradual dimunition of vision on the sides. This began twelve months previous to examination. Three and one-half months previously there had been rapid loss of vision in the left eye. Four months previous to her examination, the menstrual flow ceased and did not return. There was no pregnancy. She complained

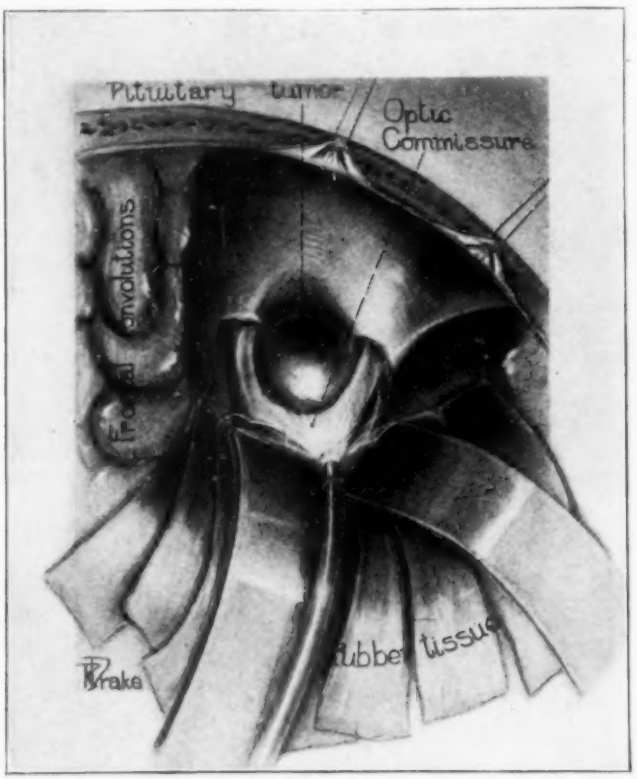

Fig. 7 (Case 1).—Exposure of pituitary tumor, with relation to optic nerves and commissure with a bitemporal hemianopsia, which is more marked in the left eye.

more or less of marked drowsiness, and slept much of the time. She had gained in weight in the last four months, and her hands and feet had become slightly enlarged so that she was obliged to increase the size of gloves and shoes. The systolic blood pressure was 100, the diastolic 64. The urine, blood and Wassermann tests, and the roentgenogram of the sella were negative. The vision in the right eye was 2/200; there was no vision in the left eye. The right nerve head was pale on the nasal side; the margin was well defined. The fields were absent on the left, and there was absolute temporal hemianopsia on the right. Operation was performed, Oct. 1, 1917. On exposure of the hypophysial body, a dark red nodule, about three-fourths inch in diameter and completely encapsulated, was found situated anterior to the optic commissure, but beneath it and elevating the left optic nerve as well as the commissure. The right optic nerve was one and one-half times the normal size, and edematous. The tumor was very adherent to the sella on the anterior side. A small amount of the gland, about one-fourth the normal, was left in the sella. Immediately following the operation, the patient developed a very high temperature (106) which continued until death, at the end of thirty hours. At necropsy, when the osteoplastic flap was reflected, a considerable amount of soft, dark, clotted blood adherent to its under surface was found. The leptomeninges were clear. There was no accumulation of blood inside the dura except a slightly blood-tinged serum down in the region of the sella. There was a marked general edema of the brain with a free flow of cerebral fluid from the right ventricle, which had been tapped during the operation to relieve the pressure and to permit a better exposure (Fig. 10 *c*).

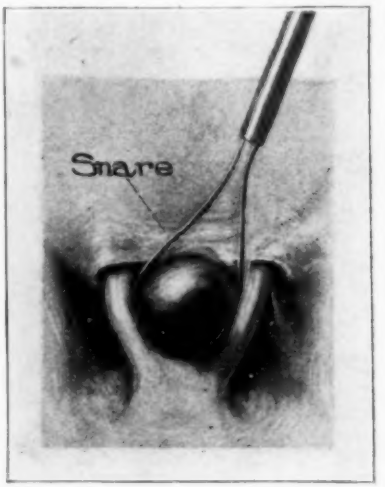

Fig. 8.—Placing the snare about the pedicle of the pituitary tumor.

CASE 3 (207279).—J. L. W., a cashier, aged 42, examined, Sept. 7, 1917, first noticed ten years previously that he had lost vision in the right eye. One year previously, vision began to fail in the left eye, incapacitating him for work for the last eight months. The systolic blood pressure was 159, the diastolic 101. The blood, urine and Wassermann tests and the roentgen examination of the sella were negative. The right nerve head was perfectly white, and there was an absence of visual field but no other fundus change. The nerve head of the left eye was markedly pale along the nasal side. The vision was 3/200. There was blindness of the right eye and a constricted left temporal field, about one third of the normal. No field whatever could be obtained with a candle on the right side. On operation, Oct. 10, 1917, a large, grayish red tumor about an inch in diameter was exposed under the right optic nerve and optic commissure, making it necessary to dissect the fibers of the nerve out of the pituitary mass. A very small portion of the pituitary body, about one fourth of a normal gland, was left in the sella. There was very rapid progress and a return of the left temporal field with light and perception of moving objects in the right eye at the end of three weeks. When the patient reported for examination three months later, there was marked improvement in the left eye, and he was able to see objects and to read large letters with the right eye, showing a decided improvement in the upper four fifths of the nasal field as well as the outer, upper quadrant of the temporal field. The blue and red color fields had also partially returned (Fig. 10 *a*).

Fig. 9.—Appearance of sella after tumor has been removed.

CASE 4 (210605).—Mrs. T. E. B., a housewife, aged 38, examined, Oct. 12, 1917, complained chiefly of eye trouble and abnormal enlargement of the feet, hands and face. The patient had had amenorrhea since the birth of her last child, eight years previously. The visual disturbances dated back five years, the time of onset of the present acromegalic syndrome. The trouble had been progressive with visual disturbances in the left eye, for the year preceding examination. She had been unable to see sufficiently to sew or to do fine work for several weeks. The general examination presented a typical picture of acromegalia. The systolic blood pressure was 110, the diastolic 80. The urine, blood and Wassermann tests were negative. The roentgen examination of the head

revealed a markedly enlarged sella. The field in the right eye was quite normal as to object and color; the left temporal field, as well as the margin of the left nasal field, were markedly constricted as to moving objects, and there was a complete absence of color fields. The fundus of each eye was negative. At operation, Oct. 25, 1917, a very soft, grayish pituitary tumor about one-half inch in diameter was found underneath the commissure and pushing upward slightly toward the left optic nerve. The tumor was completely removed and the sella curetted, leaving no possible trace of pituitary substance. The patient was immediately put on a pituitary extract, continued in alternating periods of ten days. Her recovery was rapid. There was a return of the color fields in the left eye, and considerable change in the tissue of the face, hands and feet at the end of three weeks. The mentality, which was very slow previous to operation, had greatly improved. The patient reported by letter about two months after operation, and stated that vision remained clear, that she was feeling better than she had for years, and that the swelling of the hands and feet was gradually diminishing (Fig. 10 *b*).

CASE 5 (45560).—Miss M. L., aged 36, examined Oct. 23, 1917, two and one-half years before had had severe pain in the right side of the head, associated with a failing vision in the right eye which progressed until it was complete one year previously. Within the last year, vision in the left eye had almost completely failed. At about the time the visual disturbances appeared, the menstrual flow stopped abruptly. There had been occasional vomiting, with perversion of taste and smell. The systolic blood pressure was 104, the diastolic 78. Urine, blood and Wassermann tests were negative. Roentgen examination revealed the sella apparently greatly enlarged, and erosion of the posterior clinoid process. There was pallor of the right optic disk with complete blindness, an absolute temporal hemianopsia of the left eye, pallor of the nasal side of the optic disk, and a low grade of optic neuritis of the whole left nerve head. There was no swelling of either nerve head. A diagnosis was made of a basal tumor either coming from, or encroaching on, the pituitary gland. An exploratory operation through this pituitary route was advised and performed Nov. 1, 1917. The hypophysial mass, which was situated under the right frontal lobe and very adherent to it, was exposed, but it was impossible to get below the tumor. The optic nerves could be seen, but only a partial removal of the tumor was accomplished because of the hemorrhagic condition. The postoperative convalescence was uneventful, but no benefit was derived from the operation except the relief from pain, which was obtained from the large decompression made at the base of the osteoplastic flap (Fig. 10 *e*).

CASE 6 (219123).—D. A., a girl, aged 9 years, examined, Jan. 1, 1918, for the past four years had had diabetes insipidus without glycosuria. Visual disturbance began three months previously with marked and progressive disturbance in the left eye. At the time of examination there was almost complete loss of vision in the left eye, and shortly afterward a marked loss of vision on the temporal side in the right eye. There had been nausea, vomiting, and mild headaches over the left eye. The child appeared exceptionally bright, and was well nourished. A twenty-four hour specimen of urine, 1,800 c.c., showed alkaline reaction, specific gravity 1.005, and a slight trace of albumin. The blood and Wassermann tests were negative. Roentgenoscopy revealed enlargement of the sella, and a thinness of the posterior clinoid process and base. The left temporal field showed very slight light perception. The nasal field presented a marked constriction with distortion. The left nerve head was swollen to the extent of 2 diopters; the veins were tortuous. An absolute temporal hemianopsia was present in the right eye, and in the fundus were a small disk, hazy, tortuous veins, and hyperemia of the nerve head. There were no hemorrhages in either eye. Operation was performed, Jan. 24, 1918, and a pituitary tumor about an inch in diameter was found underneath and bulging up over the optic commissure. It had originated from the pituitary gland and was extremely adherent to all the surrounding structures, with, however, a definite line of demarcation. In two places the growth had broken through the capsule and had become adherent to the brain substance. The tumor was removed with considerable difficulty, since it was impossible to get all of it from underneath the commissure. Because of the increased pressure on the brain, it became necessary to drain the lateral ventricle. There was marked progress in the return of the visual fields; the patient could read with the left eye at the end of two weeks. Improvement of the right temporal field was slower than in the usual case. Eight weeks after the operation the patient was doing well, but the visual improvement was still slow (Fig. 10 *d*).

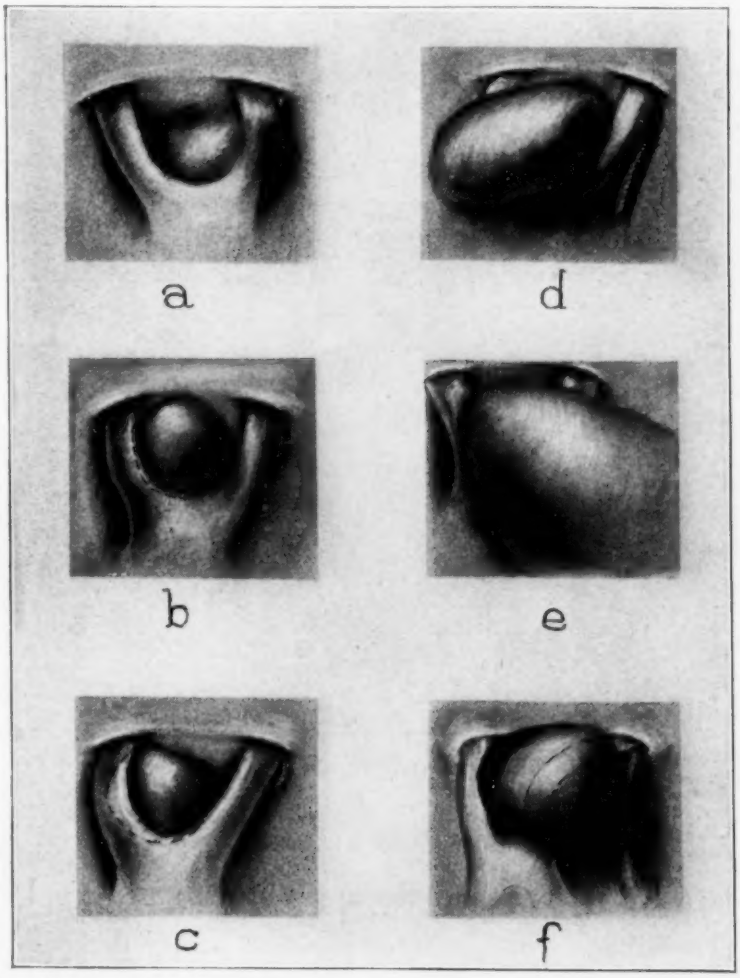

Fig. 10.—Exposure of pituitary tumor, with its relation to the optic nerves and commissure producing: *a* (Case 3), total blindness of the right eye with a left temporal hemianopsia; *b* (Case 4), contracted left temporal field associated with typical symptoms of acromegalia; *c* (Case 2), total blindness of left eye and hemianopsia of right eye; *d* (Case 6), total blindness in left eye with temporal hemianopsia of right eye; *e* (Case 5), total blindness in right eye with a temporal hemianopsia in left eye, and *f* (Case 7), exposure of an intracranial projection of nasopharyngeal sarcoma producing total blindness in right eye and temporal hemianopsia in left eye.

A case of nasopharyngeal tumor with intracranial projection (Fig. 10 *f*) producing visual disturbance is presented as a means of comparison.

CASE 7 (216363).—F. A. A., a man, aged 33, examined, Dec. 1, 1917, three years previously had noticed partial blindness in the right eye, and two and one-half years later vision

completely failed. There had been no other disturbance since that time until three weeks previous to examination, when the patient complained of vertigo and headache. The systolic blood pressure was 112, the diastolic 100. The urine and Wassermann tests were negative. A roentgen examination of the sella revealed complete erosion with destruction of the sphenoid body and cells. There was complete blindness in the right eye, absolute temporal hemianopsia in the left, a marked right optic atrophy and hyperemia of the left nerve head, but no swelling and no other fundus changes.

SUMMARY

In two of the group of six cases, the patients presented very definite bitemporal hemianopsia, with more or less complete loss of vision in the left eye. One patient had a complete loss of vision in the right eye for a period of ten years, and a left temporal hemianopsia; one presented a typical acromegalic syndrome with a temporal color hemianopsia and constricted object field; one had bitemporal hemianopsia with more or less distorted fields in the left eye, and one had blindness in the right eye with definite neighborhood symptoms producing a frontal lobe syndrome of pressure and localization, involving the uncinate gyrus. Postoperative convalescence was uneventful and rapid in all but one case, in which the patient died on the second day. In two cases there was complete restoration of vision, in two marked improvement in vision, and in one a relief from headache. In the case of blindness in the right eye which was complete for ten years, the patient has begun to have a return of vision. The patient with acromegaly is having metabolic changes. In five cases there has been definite improvement. In one, no visual improvement, but relief from pain was obtained.

The particular advantages of the operation are: 1. Its approach presents a dry field, free from infection and in which it is comparatively easy to expose the optic commissure and the tumor. 2. The exposure permits the dissection of the tumor from the optic nerves and the commissure, and the removal of all or any portion of the tumor and pituitary body that is desired. 3. Trauma of the commissure and nerves is prevented, as the sponging is done against the floor of the sella instead of working upward against the commissure and nerve peduncles. So far as the operative risk is concerned, it is no greater than in craniotomies on the frontal lobe, depending a great deal, no doubt, on the experience of the operator.

SPOROTRICHOSIS RESEMBLING TUBERCULOSIS CUTIS

REPORT OF A CASE *

J. S. EISENSTAEDT, M.D.
Instructor in the Department of Dermatology, Northwestern University Medical School
CHICAGO

A case of sporotrichosis occurring in a robust young man who appeared before the Medical Advisory Board at Wesley Memorial Hospital was referred to me for diagnosis.

REPORT OF CASE

History.—The patient stated that before the appearance of any cutaneous lesions he was operated on for supposed tuberculous glands of the neck. He stated that a small nodule appeared on the flexor surface of his right wrist about twenty-seven months previously. The nodule was about the size of a pea when first noticed and was painless. It gradually enlarged and became harder in consistency. It finally reached a maximum size of that of a hazelnut, then gradually became softer and eventually suppurated, discharging a viscid bloody pus, leaving a shallow ulceration of the skin which later apparently healed and then broke down and at the present time is still active. Coincident with the development of this primary lesion other lesions developed higher up on the right arm to the shoulder without any definite systematic arrangement or occurrence. Lesions of the same character and running a similar course developed on the left arm and now again on the right and left leg. Some of the latter have healed. There has been no deterioration in the patient's general health. There was no febrile reaction and no other symptoms except some pain on pressure over the lesions.

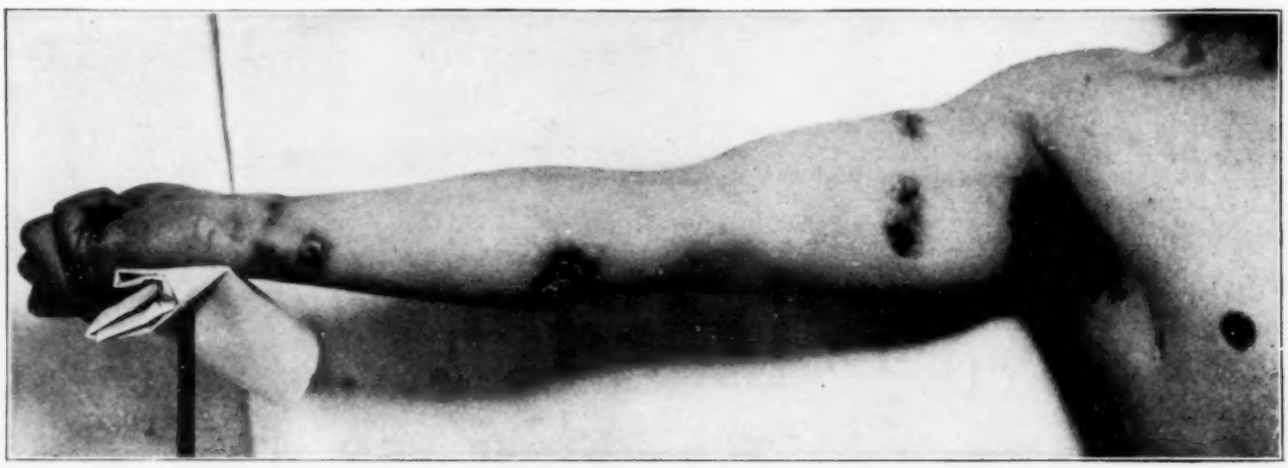

Fig. 1.—Inner aspect of right arm showing lesions of sporotrichosis in various stages of development.

Examination.—The patient, aged 21, was a healthy, robust youth. On the right arm there were several lesions varying in size from a quarter dollar to larger than a 50-cent piece. The lesions were in various stages and the most recent had been present about ten weeks. For the most part the lesions were covered with a dark yellow to blackish crust, which when removed left a superficial ulcer somewhat smaller than the crust removed. The ulcers were sharply defined, irregular in outline, with slightly undermined livid red walls. The bases presented several pale, elevated granulations and an occasional yellow miliary abscess was noted. On the inner surface of the right arm at the level of the juncture of the middle and upper thirds of the humerus was a thin, pigmented, movable scar representing the site of a former lesion.

* Read before the Section on Dermatology at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

The lesions were surrounded by a pigmented zone and were slightly, if at all, infiltrated. They did not follow anatomically nor with any definite sequence the course of the lymphatics, nor were the lymph glands markedly enlarged.

Fig. 2.—Posterior aspect of left arm showing heavily crusted lesions grouped about elbow joint.

Lesions of the same character were present on the left arm and were especially grouped about the elbow joint.

At the time of our second examination several of the lesions were in process of softening, the skin above was blue-red and the consistency of the nodule itself was elastic. On the right leg above the ankle joint was a scar similar to that described on the right arm. Another was present on the external surface of the thigh. These scars were thin, movable and pigmented. The general physical examination of the patient was negative. The temperature was 98.6 F., pulse 72, leukocytes 8,600, and hemoglobin 90 per cent.

Bacteriologic Examination.—Direct smear from the lesion, a miliary abscess having been opened, revealed leukocytes but no fungi or bacteria. Neither mycelia nor spores were present. A plain bouillon tube was inoculated as well as an agar slant, there being no maltous medium at hand at the moment. Growth on these mediums began on the sixth to seventh day and showed small, grayish-white colonies with smooth, moist surfaces. The colonies were surrounded by a narrow grayish zone of ray-like hairy projections. As the colonies grew in size the center became sunken and from it emanated many furrows toward the periphery. The areola became wider and the area of the colony much greater. Later the whole gradually assumed a convoluted appearance not unlike that of the brain. In bouillon, colonies appeared as minute puffballs. Subcultures on Sabouraud's maltose agar very promptly developed a marked pigmentation. Also subsequent subcultures were pigmented from the time of inoculation. As is characteristic, the subcultures all grew very rapidly and especially so on a favorable medium, like maltose agar. The original culture on plain agar was still unpigmented. A hanging-drop made on the eighth day from the bouillon culture showed beautifully branching septate mycelia with pear-shaped spores attached. The appearance of the cultures in every respect was identical with sporotrichon, as described by Schenck, Hektoen, and Hyde and Davis. The mycelia were from 20 to 40 microns long. The protoplasm was granular and stained by the Gram method. The pear-shaped spores present between the interlacings of the mycelial filaments were from 5 to 6 microns long and from 3 to 4 microns in width and were numerous. A white rat was inoculated intraperitoneally.

Biopsy.—A microscopic section made from one of the lesions revealed nothing distinctly characteristic. The histology was that of an infectious granuloma and showed many plasma cells. Giant, epitheloid and round cells were present in the usual arrangement found in other infectious granulomas. Microscopic abscesses were the only lesion which would suggest a diagnosis of sporotrichosis from the microscopic section alone. No necrotic areas were found. The blood vessels were very numerous in the lesion. Serum from the patient reacted positively with antigen from this and the last case seen here in Chicago. For the report on the complement fixation, I am endebted to Dr. J. J. Moore.

Treatment.—The patient was promptly put on increasing doses of sodium iodid, which unfortunately caused him greater annoyance than the disease. Following the use of compound solution of cresol locally, as recommended by Ravogli, as well as copious moist dressings of mercuric chlorid, 1:5,000, solution, some improvement was noted.

DIAGNOSTIC CONSIDERATIONS

The case in question, I believe, would fall under the heading of disseminated ulcerative sporotrichosis, which is undoubtedly of hematogenous character and which frequently, as in this case, is not associated with any trauma which the patient recalls. In this type of disease there is no characteristic *chancre sporotrichosique* present and the lesions do not follow

Fig. 3.—Massive culture of sporotrichosis grown on Sabouraud's medium.

the lymphatic channels with regularity. The lesions in the case under consideration resembled most those of tuberculosis of the hypoderm as recently described, and also looked very much like ecthyma. The tonsils or elsewhere in the pharynx seems to have been, in

this instance, the possible site of entrance for the infection.

The important dignostic features to be borne in mind are that sporotrichosis when affecting the cutaneous surface may appear in a variety of forms and that the so-called localized type in which the lesions appear along the course of the lymphatics on the extremity which carries the initial chancre is only one of the forms. Sporotrichosis, besides causing the variety described in this brief paper and the localized type, may cause a disseminated nonulcerative form and likewise combinations of the three. Some cases begin as the localized form and progress, by way of the lymphatics, for a considerable period of time and then develop lesions at remote regions when the organism finds its way into the blood stream.

One should consider seriously sporotrichosis in the differential diagnosis of lesions of gummatous-like or nodular character which are indolent, painless, and which persist over a considerable period of time in spite of the ordinary treatment directed against the usual types of bacterial infections. Especially so, when the general condition of the patient does not seem to be reduced.

The disease occurs particularly in people living in rural districts and among farmers. It has been noted equally as frequently in association with trauma as when no such association was noticed. It has been observed at all ages and more especially in men. The bacteriologic diagnosis is so simple and usually so definite that excuses for faulty diagnoses can hardly be accepted, because even when laboratory facilities are lacking, the fungus grows readily on potato. I firmly believe that many cases have gone undiagnosed on account of the neglect of this simple bacteriologic technic.

25 East Washington Street.

ABSTRACT OF DISCUSSION

Dr. Frederick G. Harris, Chicago: I saw this patient, but I did not think it was a case of sporotrichosis. Tuberculous glands had been removed previously and the skin lesions looked like tuberculosis of the hypoderm, as described by Wende, hence I made that diagnosis.

Dr. K. A. Zurawski, Chicago: I have seen quite a few cases of this type, both the ulcerative cases and the cases of chancre type. Many of the cases have occurred among workers in the gardens around Chicago; one occurred in a baker. The cases were very easily treated, but I used cyanid of mercury instead of chlorid locally. The iodids internally usually clean up the lesion. One should never forget that sporotrichosis is a systemic disease in many cases. In one of my cases sporotrichosis of the lung has developed. It is a good plan to inquire into the history, and if there is any cough, examine the sputum. As far as the organism itself is concerned, about seven varieties of definite sporothrix are recognized at present. I have met but one that I am sure of, that of the de Beurman type. I have seen one of the type of Doro, of which the slide was brought to me. I did not see the patient.

Dr. Richard L. Sutton, Kansas City: Our French brethren have an unfortunate habit of dividing and subdividing these pathologic conditions and then winding up by attaching some scientist's name to each particular one of the supposed forty-seven different varieties. Meyer and Aird believe that the *Sporothrix schenckii* is identical with the *Sporothrix beurmanni* and suggest for the American strains of sporotrichia the designation of "*Sporothrix schenckii-beurmanni*." With regard to the treatment, some of the cases have a tendency to become pulmonary, or even systemic, and it is very unwise to expose the patient to so grave a generalized infection. Consequently, I should advise large doses of iodin, given intramuscularly or subcutaneously, in this case reported by Dr. Eisenstaedt.

Dr. Augustus Ravogli, Cincinnati: I had a case of sporotrichosis which I published some time ago under the title of "Sporotrichosis of Tuberculoid Type." The patient was a young woman who was working in a grocery store, labeling boxes. She was treated for ulcerated gumma. When she came to me the lesion was a gangrenous patch on the flexor surface of the elbow joint. After continuous bathing with mercuric chlorid it improved. I found the characteristic mycelium and the ovoid spores. I made a culture and obtained the *Sporothrix schenckii*. The appearance was entirely different from the ordinary cases of chancre sporotrichosis with the little black abscesses. This was in a mass, and for this reaon I made the diagnosis of a sporotrichosis of tuberculoid type. The girl inoculated her forehead from the lesion on her forearm, but fortunately this healed in a short time. I used large doses of potassium iodid internally, together with an iron tonic, and locally applications of liquor cresolis compositus in full strength. Every day the area was bathed with mercuric chlorid, 1:2,000, and dressed with an ichthyol ointment. I secured a perfect recovery.

Dr. J. S. Eisenstaedt, Chicago: Since the paper was written the patient has received intramuscular injections of a 25 per cent. iodin solution.

Clinical Notes, Suggestions, and New Instruments

RUPTURE OF CESAREAN SCAR DURING PREGNANCY: REPORT OF A CASE

Carl R. Howson, M.D., Redlands, Calif.

The patient was a Mexican woman, aged 24, and had been pregnant seven months. Nine months previously she had been delivered by cesarean section, and made an uneventful recovery, with the exception of a slight superficial infection in the abdominal wound.

I was called to see her on a Saturday evening. About 2 p. m. the previous day, while at stool, she had been seized with pain in the abdomen of such severity that she was unable to move. Her physician was called, and finding her apparently in good condition she was put to bed and a mild anodyne administered. About midnight the pain recurred in paroxysms of great severity, and her physician was again sent for. He advised immediate removal to a hospital for laparotomy, but the advice was declined. She was catheterized at this time. The next forenoon he called, and again urged her removal to the hospital, but to no avail.

On my arrival at 9 p. m. that evening I found the patient in a semirecumbent position, bright, and feeling little pain or weakness; her temperature was 98.6; the pulse was 130 and of good quality. She had passed no urine since midnight, and had felt no fetal movement during the day. On the abdomen was a large, broad and slightly irregular cesarean scar. Distention and tenderness were such that no information could be obtained as to internal conditions beyond the absence of the fetal heart sounds. Immediate removal to the hospital for laparotomy was advised, and finally agreed to, and the case then passed out of my hands.

On arrival at the hospital shortly after midnight her temperature was 98.6 and her pulse 110. She was catheterized, and 300 c.c. of urine with a trace of albumin were withdrawn. The house physician disagreed with the diagnosis that had been made, considering the case one of toxemia in which conservative treatment was indicated, and accordingly instituted. Her condition remained unchanged that day, and the following day, Monday, a diagnosis of dead fetus was made. She was anesthetized to permit of the introductioon of a colpeurynter, but became so cyanotic that the anesthetic had to be discontinued and the bag introduced without it. As no pains set in during the ensuing twenty-four hours, an attempt was made to dilate manually under anesthesia, but

the patient succumbed as soon as she was fully anesthetized. During these two and one-half days her pulse ranged between 110 and 120.

Necropsy revealed the fetus lying in the abdominal cavity with the membranes and placenta intact. The uterus was contracted and in the pelvis, the fundal portion of the scar having ruptured. The amount of blood present indicated that the hemorrhage had been relatively slight.

It is noteworthy that this woman sustained a partial rupture of the uterus ten hours before the complete rupture and extrusion of the uterine contents, and that she lived more than eighty hours after the latter occurrence.

STREPTOCOCCIC MENINGITIS IN THE MOTHER AND CHILD IN UTERO: REPORT OF A CASE *

G. B. KRAMER, M.D., AND WILLIAM B. WRIGHT, JR., M.D., ST. PAUL
Pathologist and Assistant to the Superintendent, Respectively, City and County Hospital

That the pregnant mother transmits infectious diseases to the child in utero is known. The transmission of measles, scarlet fever, variola, typhoid fever, malaria, recurrent fever, erysipelas, cholera, bubonic plague, anthrax, tuberculosis, syphilis and pus infection from the mother to the child in utero have been reported, but this case is an exceedingly interesting one, especially for those who are interested in the elective localization of streptococci.

REPORT OF CASE

History.—A. C., a white woman, aged 24, admitted to the City and County Hospital, St. Paul, April 12, 1918, had been complaining of backache since Jan. 1, 1918, and since that time had been treated by her local physician. The nature of the treatments were unknown to the patient's sister, from whom the history was obtained. About ten days before admission to the hospital, the patient complained of a cold, backache, sore throat and pains in the chest. She was unable to leave her bed and became delirious. Physical examination in the hospital revealed that the patient was pregnant, possibly of eight months' duration. The cervical and inguinal glands were palpable. The pupils were dilated and reacted sluggishly to light. The breath sounds were rather harsh, and some râles were heard over both lungs which were thought to be due to congestion. The temperature was 105, the pulse 140, and leukocytes 17,000. The patient died on the day of admission before a definite diagnosis had been made. The necropsy was performed by Dr. G. B. Kramer, April 13.

Abstract from Necropsy Findings.—The body was well developed and was well nourished. The pupils were dilated and were equal in size. The heart muscle was soft, and pale red. The lungs were congested and edematous. There was congestion of the stomach and intestine. The kidneys contained pinpoint hemorrhages, and on section the parenchyma was found to be cloudy and swollen. The uterus was bluish red, large and soft, and from it a well developed fetus was removed. The cervix was congested and contained mucus. The fetal membranes were intact and the placenta appeared normal. The meninges were congested. The brain was edematous and congested, and the entire cerebral hemispheres, extending from the sylvian fissures to the occipital region, were covered with greenish-yellow pus. The accumulation of pus was more marked on the right side. Smears from the pus made on the spot contained streptococci which by culture proved to be the *Streptococcus pyogenes-hemolyticus.*

The fetus, a male, was well formed, well nourished and was 40 cm. (about 16 inches) long. Nothing pathologic was noted in the thoracic and abdominal viscera. The cranial sutures were well separated. The fontanels were bulging. The meninges were congested and slightly edematous. The base of the brain, including the cerebellum, was covered with a light greenish-yellow pus. The ventricles of the brain were not dilated. Smears made from the pus contained streptococci of the same type described above.

* From the Pathological Laboratory, City and County Hospital.

COMMENT

Rosenow and others have proved that in a large percentage of cases streptococci isolated from lesions of certain parts of the human body will, when injected into an animal, localize in similar parts and produce like lesions in the animal. This case of meningitis in the mother and child in utero, as it appears to us, demonstrates a genuine case of elective localization of streptococci in the human body.

REPORT OF A CASE OF ANAPHYLACTIC SHOCK, WITH FAILURE TO DESENSITIZE BY INTRASPINAL ADMINISTRATION OF SERUM

LEWIS FOX FRISSELL, M.D., NEW YORK

This case of anaphylactic shock in cerebrospinal meningitis is reported in order to record the failure of serum administered intraspinally to desensitize the patient to its intravenous administration.

The patient, a woman, aged 40, first seen by me one week after the onset of her illness, had had severe headache, with moderate temperature, at first declining and then rising, on the day when first seen, April 13. No focal meningeal symptoms had been observed. On the date of admission, April 13, her temperature was 104, pulse 90, and respiration 20. Physical examination revealed only a moderately rigid neck, absent patellar reflexes, and positive Babinski and Oppenheim reflexes on the right side. Kernig's sign was present. Lumbar puncture at 5 p. m. on the same day revealed a spinal fluid under pressure, moderately turbid, containing 810 cells per cubic millimeter, a + + + butyric acid test, and the intracellular and extracellular presence of the meningococcus. The blood culture was negative. Twenty c.c. of antimeningococcus serum (New York Board of Health) were given intraspinally, on the 14th 40 c.c., and again on the 15th 20 c.c., or 80 c.c. in all.

As the patient had been seen late, though her symptoms were somewhat ameliorated, in consultation with Dr. Amoss of the Rockefeller Institute it was decided to begin intravenous treatment as well, with the idea of possibly influencing the organisms which might be walled off by a pocketing process in such inaccessible positions as the lateral ventricles. At 2:30 p. m. on the 15th, 100 c.c. were given intravenously, warmed and diluted with equal parts of warm saline. The duration of the period of administration was twenty-five minutes. At the end of the administration the patient complained of extreme dyspnea, and became unconscious and pulseless. She was breathing rapidly, in complete coma, with contracted pupils (morphin had been given one-half hour previously) and throughout the chest were heard many sibilant and sonorous râles, and a few moist crepitations. The muscles of the jaw were clenched, and the tongue, which had become edematous, dropped back into the throat and prevented her breathing. Epinephrin, 10 minims, caffein sodiobenzoate and atropin were administered during the attack, and within ten minutes the patient again became conscious. In the effort to open her mouth to pull forward her tongue, two teeth had to be removed, and the hemorrhages from this condition continued several hours, all ordinary styptics and packing failing to control it.

It had been assumed that in the forty-eight hour period between the first administration of serum intraspinally and the first intravenous administration, there would be sufficient passage through the choroid plexus to cause antibody production and thus desensitize the patient to the intravenous administration of horse serum. This assumption was obviously in error.

Thereafter, between the 16th and the 19th, 120 c.c. more of serum were given intraspinally. The cell count, which had risen, fell from 1,700 to 200, and no organisms were demonstrable after the 15th. The patient made a subsequent uninterrupted recovery, except for a severe urticarial eruption lasting from April 26 to May 2.

It is our belief that we were in error in assuming that the intraspinal administration of the serum would necessarily desensitize the patient, and in the future we would always administer the serum intravenously, by fractional doses.

113 East Fifty-Sixth Street.

A CASE OF SYPHILITIC REINFECTION

JOSEPH SPANGENTHAL, M.D., BUFFALO

Syphilitic reinfections are of such interest and of so infrequent occurrence that I consider this case worthy of being recorded. Fortunately for the authenticity of the diagnosis, it was my privilege to observe and treat the patient throughout both infections.

M. H., a man, aged 28, consulted me in September, 1913, on account of a genital initial lesion the size of a dime. October 1, he presented a general secondary eruption, accompanied by angina, mucous patches, and involvement of the lymphatic glands. The physical signs were so typical and the diagnosis so unmistakable that it was not considered necessary to make a Wassermann test. In corroboration of the diagonsis, it will be of interest to give the history of his wife, whom he had infected.

Several weeks after the patient's infection, the wife presented a secondary papular syphilid, angina, and mucous patches. The chancre involved the whole cervix uteri. About a month later she developed an optic neuritis, with complete blindness of one eye. This cleared promptly after an intravenous injection of neo-arsphenamin (neosalvarsan).

Oct. 2, 1913, the man was given 0.9 gm. of neo-arsphenamin (neosalvarsan) intravenously. October 18 this treatment was repeated.

October 26, intramuscular injection of mercuric salicylate 1 grain in oil, was administered, and repeated weekly until four injections had been given. This constituted the entire treatment.

Every six months the patient reported for a Wassermann test, which in every instance gave a negative reaction.

In March, 1918, the patient was in Boston, and while there a Wassermann test was made, and reported negative. During March, he gives a history of frequent and prolonged kissing. The girl in question was at that time suffering from syphilis, and had later received four injections of arsphenamin (arsenobenzol).

About April 1, 1918, the patient developed a chancre of the upper lip. May 14, he again consulted me. The chancre was still present, but undergoing resolution. There was a secondary maculopapular eruption covering the entire body, accompanied by angina and glandular involvement. There was no mistaking the clinical picture of syphilitic infection.

In order to satisfy the patient as to the diagnosis, a Wassermann test was made independently by two serologists, and both reports were +++, showing complete inhibition of hemolysis.

If the theory is correct that syphilitic reinfection cannot occur unless the previous infection has been eradicated, this case should offer proof of its curability.

595 Lafayette Avenue.

Simple Method of Making Permanent Platinum Loops for Laboratory Workers.—A loop of the size desired is made of platinum wire. The loop should be a closed one, the free end being in contact with the main portion of the wire, thus: ρ. The loop is heated to white heat in a Bunsen or alcohol flame and then dipped into a container of silver nitrate crystals while hot. It is reheated in the flame until the silver nitrate is burned off. On examination it will be found that the loop has become permanently fused. The advantages of these fixed loops are believed to be, first, they are time saving, on account of the elimination of the necessity of constantly remaking loops, and second, uniformity of size can be maintained.—A. J. CANNING, M.D., Major, Medical Corps, U. S. Army, Department Hospital, Manila, P. I.

Military Medicine and Surgery

NEUROCIRCULATORY MYASTHENIA

A PROBLEM OF THE SUBSTANDARD SOLDIER

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The efficiency of an army depends on the ability and capability of the individual unit. It is, therefore, no small and no unimportant part of the duty of the medical corps of an army to determine at the earliest possible moment those who will make reliable soldiers and to separate them from those who are constitutionally or otherwise inefficient.

The fact that the present field of battle is more than 3,000 miles distant strongly emphasizes the importance of a service that will permit no useless recruit, if possible, to encumber transportation or to add to the burden of an already overcrowded hospital system. Then, too, though our country has a manifest right to take our life and property, if absolutely necessary, it would be unwise to deprive the state of a partly self-supporting civilian only to make a soldier who would break down at the first intense physical strain or shock of battle.

One of the first steps, then, in the development of a new army is to sort out those who are manifestly unfit. This group[1] includes patients with pulmonary tuberculosis, organic diseases of the heart and blood vessels, exophthalmic goiter, marked hypertrophy of the heart and persistent tachycardia. This sorting, made with considerable rapidity on account of the need of speedy action, suffices to weed out a considerable number whose inefficiency is detected by this superficial examination. The remainder return to their commands for the rapid and intensive training necessary to create real soldiers.

As this training becomes more and more intense, soldiers are reported by their regimental surgeons as not being able to keep up with their work and as complaining that the hard drilling causes breathlessness, precordial pain, headache, giddiness, and early and prolonged exhaustion. The regimental surgeons, on account of their multifarious duties, do not seem to have the time needed to observe closely and record the actual condition of these men after their various exercises and drills—the true test of their efficiency as soldiers.

The difficulty of determining with accuracy and with justice the exact condition of these soldiers was such as to render routine examinations practically worthless. Permission was therefore kindly given by the division surgeon at Camp Sevier, S. C., Lieutenant-Colonel Whaley, M. C., to assemble these doubtful cardiac patients in a separate detachment on the grounds of the base hospital to which they were assigned for rations and quarters, though they were not carried as patients on the hospital roster.

A cardiovascular detachment of ten tents was opened and forty-one soldiers were received with their complete equipment, except arms, to remain under observation. Of the forty-one patients, seven were found to have organic disease of the heart and were

1. No mention need be made here of other causes of disability—neurologic, surgical, orthopedic, etc.

sent to the surgeon's certificate of disability board for discharge. Five were adjudged free from any cardiovascular disability and were returned to their commands with the request that they be kept under observation for a time.

CONDITION OF SUBSTANDARD SOLDIERS

The remaining twenty-nine soldiers all had this in common: They were reported as inefficient soldiers, though no determinable organic cardiovascular lesion was found. They presented practically the same syndrome: marked cyanosis of the hands extending up above the wrists; coldness and sweating of the hands and feet; sweating under the armpits even when in a cold tent; tremor; flushing; marked lability of the pulse and blood pressure on standing, lying down, and after exercise; marked thrill, often felt over the precordium; no increase of cardiac dulness; booming first sound or indefinite murmur at the apex; frequent accentuation of the second pulmonic sound, and mental instability. After exercise these patients became more or less breathless and cyanotic, and complained of precordial pain, palpitation, giddiness and abnormal exhaustion.

PIGNET'S FORMULA FOR ESTIMATING PHYSICAL EFFICIENCY*

Index Number	Efficiency
Under 10	Very strong
From 10 to 15	Strong
From 15 to 20	Good
From 20 to 25	Fair
From 25 to 30	Weak
From 30 to 35	Very weak
Above 35	Useless

* Vedder's Medical War Manual No. 1, p. 70. The weight in kilograms and the chest measure at expiration in centimeters are added and subtracted from the height in centimeters.

The type of their physique was first studied and determined according to Pignet's formula.[2] They were thus grouped: useless, 9; very weak, 6; weak, 6; fair, 5; good, 2, and strong, 1. Only one of these men could be graded as "strong." Half of them were "very weak" or "useless."

Examinations by the nose and throat specialists and the dentist revealed apparent foci of infection in every case. Many had double infections, both in diseased tonsils and in pus pockets about the teeth.

The examination of the blood in three cases before, directly after, and one hour after a two hours' hike gave the following findings: practically no difference in the number of leukocytes before and directly after exercise, and an increase of from 50 to 90 per cent. in leukocytes in all three cases one hour after exercise. No material change was determined in the types of leukocytes. Roentgen-ray examinations of the gastro-intestinal tract in four of these patients revealed normal motility of stomach and small intestine. One of the four had a gastroptosis, the border of the stomach reaching the pubis (erect posture). Examinations of the urine were not made, and temperature, pulse and respiration morning and night were not taken on account of incomplete organization. A summary of the findings in each case is given in the accompanying table.

At first the diagnosis of these cases and disposition of the men caused the greatest uncertainty. It was quickly realized that they were manifestly not fit[3] for military service, but how to classify them without arousing suspicion about one's own diagnostic acumen, without endangering the efficiency of the army and without doing injustice to the soldier himself was the question. Mitral stenosis, tachycardia and goiter heart kept constantly recurring, but these diagnoses were made with a feeling of question and doubt.

Finally the realization suddenly became manifest that all these soldiers were a *group of substandard men who have been subjected for many years to a low grade infection and were suddenly thrown into a new environment with conditions of life entirely different from those of all their previous experiences.*

The diagnosis was then no longer in doubt. The listless, dull expression, the relaxed, careless posture and carriage, the tremor, the marked cyanosis of the hands reaching half way to the elbows, the coldness and moisture of the palms of the hands, and the profuse perspiration of the armpits even in a cold tent made a picture which, when appreciated, is recognized often at the first glance.

The British, in their vital haste to send immediate reenforcements to the French army, accepted, practically without examination, every volunteer who could walk. The result of such an unfortunate though necessary policy became quickly apparent. The British hospitals were soon hopelessly submerged by soldiers with irritable hearts who seemed to be made worse under the usual hospital treatment and thus were likely to become chronic invalids and occupy beds urgently needed for the patients with serious diseases.

TREATMENT

Thomas Lewis and his associates, among whom are several members of the Medical Reserve Corps of the United States Army, promptly established order out of this chaos and placed the treatment of these patients on a basis which not only rendered the diagnosis certain but also definitely determined the prognosis and absolutely established the correct method of treatment, that is, progressively graduated, efficient exercise.

The British problem had to do with soldiers returned disabled from the front, half of whom were regarded as constitutionally unfit, while the disabled condition of the other half was the result of extreme exhaustion, shock or infection. The British cases are divided etiologically into three groups: A, constitutional, 50 per cent; B, exhaustive, and C, toxic, the two latter forming the other 50 per cent.

Our present problem is somewhat different from that of the British, as we have the time, the men and the opportunity, without interfering with the rapid training of the fit. Briefly, our task is to prevent the sending to the fighting line of the 50 per cent. who, because they are constitutionally defective, will promptly break down under the intense strain of modern warfare and thus become an incalculable burden to the Army, rather than be of any military value. The determination of this constitutionally substandard 50 per cent. should not, in the great majority of cases,

2. Pignet's formula is given apparently as of accepted value but without comment. Investigation reveals that it was evolved by Major Pignet, a contemporary French army surgeon. Dr. J. A. Blake, a British army surgeon, translated this formula into British measurements. Major Butza of the Roumanian army records the use of this test on 816 men in different regiments and considers it of incalculable value. It was in use in the garrison at Bucharest as a method of determining the physical constitution of the recruits and consequently their fitness for military service. He states that this formula is an excellent one for use in the interest of the men themselves, for the army and for the nation.

3. Many of these soldiers were refused discharge by the surgeons' certificate of disability board, as no determinable lesion was found.

be a matter of difficulty. It does not require complicated apparatus or intricate methods. It resolves itself simply into determining by close observation which men cannot efficiently do the work of a soldier.

This type of case plays no part in civil practice because these patients seek the line of least resistance and undertake only the work they are physically able to do. They are often classed among the shiftless, the ne'er-do-wells and the constantly complaining, and are without "pep," energy or ambition.

With the keenness of the great internist, DaCosta recognized the same condition in the Civil War, described it accurately under the term "irritable heart of soldiers," and prescribed a system of graduated military work which in essentials is similar to that now advised by the British. In order to avoid the psychic effect of the fear of heart disease on these men, Lewis gave the name "effort syndrome," which tells nothing except that it is the result of effort, and then only in a very small percentage of the soldiers subjected to excessive effort. The American physicians working with Lewis, recognizing its nervous and circulatory manifestations and its kinship to neurasthenia, have called it "neurocirculatory asthenia." This term, which is very expressive, lacks, however, a reference to one of the most striking characteristics of this disorder, namely, the marked weakness of the muscular system, both the myocardium and the voluntary muscles. This omission is corrected by the use of the term myasthenia instead of asthenia, thus placing this disability on the triad weakness of the nervous, circulatory and muscular systems.

In the cases under our observation, the object was not only to recognize this condition but also to initiate measures which might result in gradually building up a condition of first-line efficiency in some of those who had been found unfit, to render others valuable for special military service, and to return the remainder to their former occupations in civil life.

These soldiers were therefore sent to the clinics at the base hospital for the treatment of their teeth and tonsils, and graduated exercises were given twice a day with graded hikes in the afternoon. An effort was made in the exercises to follow out the advice of Lewis based on the British experiences. They were taken from the manual and arranged by Capt. J. D. Thomas, M. R. C., and were carried out with soldierly precision under the direction of an intelligent

RESULTS OF EXAMINATIONS IN TWENTY-NINE CASES*

Name and Case Number	Neurovascular Condition	Efficiency by Pignet's Formula	Nose and Throat Condition	Dental Condition	Other Conditions
1. C. B.	Precordial pain; breathlessness; exhaustion; giddiness; palpitation; cold hands and feet; cyanosis; sweating; mental instability	28 Weak	Diverted septum, left; hypertrophied middle turbinate; tonsils enlarged and pus in pocket	Severe gingivitis; numerous pus pockets	No hookworm
2. M. J. G.	Breathlessness; anginal pain; hyperalgesia; exhaustion; palpitation; giddiness; headache; lassitude; coldness and sweating of hands and feet; irritability	46.50 Very weak	Tonsils submerged and enlarged; crypts with cheesy material; possible foci	No foci of infection	No hookworm
3. L. G.	Breathlessness; exhaustion; giddiness; fainting; palpitation; headache; lassitude; cyanosis; cold hands and feet; sweating; flushing; mental instability; tremors	27.50 Weak	Negative	Two foci of infection; slight gingivitis	No hookworm
4. W. R.	Breathlessness; hyperalgesia; giddiness; palpitation; headache; sweating	35 Useless	Right ethmoid suspicious; middle turbinate unhealthy and discharging	Gingivitis with pus pockets around several teeth	No hookworm
5. B. G. O.	Breathlessness; precordial pain; exhaustion; giddiness; fainting; palpitation; headache; coldness and sweating of hands and feet; cyanosis; flushing; mental instability	37.15 Useless	Left tonsil diseased and possible focus; adenoids present	Negative	No hookworm
6. W. B. L.	Breathlessness; precordial pain; hyperalgesia; giddiness; palpitation; headache; lassitude; coldness and sweating of hands and feet; cyanosis; mental instability	31.76 Very weak	Bad tonsils, should be removed; adenoids	Focal infection suspected; sent for roentgen ray examination	No hookworm
7. J. O. P.	Cough; breathlessness; precordial pain; giddiness; palpitation; fainting; lassitude; coldness of hands and feet; sweating of hands; cyanosis; mental instability	27.90 Weak	Crypts of tonsils show cheesy material; possible foci	Slight gingivitis; no other foci of infection	No hookworm
8. C. F. G.	Breathlessness; precordial distress; exhaustion; giddiness; fainting; palpitation; slight coldness and sweating of hands and feet; slight cyanosis; sleeplessness; inability to fix attention; slight tremor	24.4 Fair	Nose and sinuses clear; tonsils small; small amount of cheesy material from a few follicles	One tooth is a focus of infection	No hookworm
9. A. M. B.	Breathlessness; precordial distress; exhaustion; giddiness; fainting; headache; sleeplessness	26.50 Weak	Questionable anterior bilateral ethmoid infection; fair sized adenoids; tonsils much enlarged	Mouth in bad condition; gingival pus pockets; several suspected blind abscesses	No hookworm
10. G. F. E.	Breathlessness; exhaustion; giddiness; headache; palpitation; coldness and sweating of hands and feet; marked cyanosis; marked tremor and flushing	38.50 Useless	Nose and throat clear; cheesy material in both tonsils; possible foci of infection	Negative; not caring for teeth	No hookworm
11. H. H.	Marked breathlessness; precordial distress; exhaustion; occasional fainting; headache; coldness and sweating of hands and feet; cyanosis; sleeplessness; slight tremor; hyperalgesia	21.50 Fair	Nose and sinuses clear; crypts of tonsils cheesy; possible foci of infection	Two teeth need attention; no focal or blind abscesses	No hookworm
12. A. L.	Breathlessness; precordial distress; exhaustion; giddiness; palpitation; headache; lassitude; coldness and sweating of hands and feet; irritability; restless at times; flushing	21.50 Fair	Sinuses clear; adenoids large; tonsils very large and badly infected	Negative	No hookworm; roentgen ray suggests healed tuberculosis; also some present activity
13. O. K.	Marked breathlessness; giddiness; palpitation; coldness and cyanosis of hands and feet; irritability	31.38 Very weak	Sinuses clear; cheesy material expressed from tonsils; possible foci of infection	Negative	No hookworm
14. O. C.	Breathlessness; precordial pain; hyperalgesia; exhaustion; giddiness; palpitation; headache; lassitude; coldness and sweating of feet and hands; cyanosis; sleeplessness; tremor; slight flushing	12 Strong	Nose and sinuses clear; tonsils definitely diseased; probable foci	Gingivitis with a few pus pockets, two teeth suspected as having blind abscesses at roots	Hookworm
15. J. S. G.	Breathlessness; precordial pain; exhaustion; giddiness; palpitation; headache; coldness and sweating of hands and feet; cyanosis; irritability	34.74 Very weak	Deviated nasal septum blocking ventilation and drainage of sinuses; tonsils small; cheesy material in crypts	Suspected blind abscesses; gingival pockets about all teeth possible foci	No hookworm

* Although the number of cases described is comparatively small, they are characteristic and apparently represent a large group of potential inefficients.

RESULTS OF EXAMINATIONS IN TWENTY-NINE CASES—*Continued*

Name and Case Number	Neurovascular Condition	Efficiency by Pignet's Formula	Nose and Throat Condition	Dental Condition	Other Conditions
16. T. S.	Marked breathlessness; precordial distress; exhaustion; giddiness; lassitude; coldness and sweating of hands and feet; cyanosis	45.60 Useless	Sinuses clear; tonsils large and badly diseased; probable foci of infection	Negative	No hookworm
17. J. C. S.	Breathlessness; precordial pain; hyperalgesia; exhaustion; giddiness; palpitation; headache; lassitude; coldness and sweating of hands and feet; cyanosis; sleeplessness; inability to fix attention; marked tremor	44.46 Useless	Deviated septum; right sinuses clear; cheesy material expressed from tonsils	Several suspected blind abscesses; gingivitis with marked pus pockets	No hookworm
18. C. M.	Breathlessness; precordial pain; exhaustion; giddiness; palpitation; lassitude; coldness and sweating of hands and feet; slight cyanosis; sleeplessness; inability to fix attention	29.74 Weak	Small amount of cheesy material expressed from tonsils	Probably several blind abscesses	No hookworm
19. S. P. M.	Breathlessness; precordial pain; exhaustion; giddiness; palpitation; lassitude; coldness and sweating of hands and feet; slight cyanosis; sleeplessness; inability to fix attention	36.9 Useless	Nose and sinuses clear; tonsils small and fibrous; negative	Negative; slight gingivitis with some pus	No hookworm
20. C. E.	Breathlessness; exhaustion; giddiness; midsternal pain; palpitation; headache; lassitude; coldness and sweating of hands and feet; irritability; restless; tremor; slight cyanosis	19.10 Good	Chronic ethmoiditis, bilateral; atrophic rhinitis	Severe gingivitis, some pus pockets; no blind abscesses	No hookworm
21. C. L.	Breathlessness; precordial distress; exhaustion; giddiness; lassitude; irritability; sleeplessness	30.76 Very weak	Acute rhinitis; cheesy material in tonsils; possible foci of infection	Some gingival pus pockets; blind abscesses on 2 teeth	No hookworm
22. H. L.	Breathlessness; precordial distress; exhaustion; palpitation; lassitude; coldness and sweating of hands and feet; cyanosis; slight tremor	20 Fair	Nose and sinuses clear; some cheesy material expressed from tonsils; possible foci of infection	Several pus pockets; severe gingivitis and probable pyorrhea	No hookworm
23. J. S. S.	Breathlessness; precordial pain; exhaustion; giddiness; palpitation; headache; lassitude; coldness and sweating of hands and feet; cyanosis; sleeplessness; inability to fix attention	17.15 Good	Nose and sinuses clear; tonsils seem badly diseased	Bad mouth; pus pockets about all teeth; blind abscesses on 2 molars	Hookworm
24. J. H.	Breathlessness; precordial pain; exhaustion; giddiness; palpitation; headache; lassitude; coldness and sweating of hands, feet and body; cyanosis; mental instability; tremor	35.12 Useless	Nose and sinuses clear; deviated septum; tonsils small but infected; probable foci	Slight gingivitis; no visible pockets; 2 teeth suspected of blind abscesses	Hookworm
25. W. E. T.	Breathlessness; precordial pain; exhaustion; giddiness; fainting; palpitation; headache; lassitude; sweating and coldness of hands, feet and body; cyanosis; mental instability; slight tremor	29.39 Weak	Posterior group sinusitis, bilateral; anterior ethmoid left; tonsils definitely diseased	Death of two teeth from old trauma; probable antrum trouble, right side	Hookworm
26. G. E. F.	Breathlessness; precordial pain; exhaustion; giddiness; palpitation; lassitude; coldness and sweating of hands, feet and body; moderate cyanosis; irritability; slight tremor	38.92 Useless	Nose and sinuses clear; tonsils enlarged and infected; probable foci	Some carious teeth; other teeth in good condition except 2 lower incisors	No hookworm
27. S. T.	Breathlessness; precordial pain; exhaustion; giddiness on exercise; fainting; palpitation; headache; lassitude; coldness and sweating of hands, feet and body; cyanosis; mental instability; slight tremor	20.78 Fair	Nose and sinuses clear; tonsils definitely diseased; probable foci of infection	Teeth in front contained old root under bridge; two pockets due to gingivitis	
28. G. S.	Breathlessness; anginal pain; exhaustion; giddiness; faints easily; palpitation; lassitude; sweating and swelling of feet; cyanosis; mental instability; slight tremor	30.75 Very weak	Nose and sinuses clear; crypts of both tonsils filled with cheesy material; possible foci	Negative	No hookworm
29. G. R. M.	Breathlessness after severe exercise; precordial pain on exercise; slight exhaustion; very slight tremor; dislike of alcohol	32.79 Very weak	Nose and sinuses clear; several follicles in each tonsil filled with a cheesy material; possible foci	Slight gingival infection; questionable foci of infection; 2 teeth suspected	No hookworm

and enthusiastic drill sergeant. During the exercises the soldiers were closely watched by two physicians in order to detect at once evidence of abnormal exhaustion. These simple exercises, readily applicable, seemed more accurate than any complicated system, as each soldier had in them the correct measure of his own efficiency, that is, his own weight. The problem is what each soldier can do with his own physique, irrespective of height and weight. This limited and superficial try-out, so easily inaugurated, would seem to indicate that much of profit and scientific value might be secured if the examination could be extended and made more complete. These soldiers, partly well, partly ill, are not proper hospital patients, but should be kept under rigid military observation in field hospital tents or in barracks. The temperature, pulse and respiration should be taken twice a day. There should be frequent blood and urinary examinations, and the subjects should be accessible to a base hospital where treatments for foci of infection could be carried out and roentgenograms taken as seemed necessary.

A well balanced and graduated series of exercises and hikes under especially trained and enthusiastic drill sergeants, followed later by the gradual resumption of the regular work of the soldier, could be initiated and the exact results noted from day to day, in order to determine the wisdom and extent of further effort. Baseball, football, basketball, sparring and wrestling, together with such appropriate occupations as gardening, knitting and basket weaving, should be encouraged in this type of case, as there is a marked tendency to mental depression and introspection, with a lack of initiative.

Such reconstructive work would save for the Army many soldiers who, under the stress of warfare, would quickly break down and would become a serious burden on our hospital service for long periods. Others not so strong could be held in the Army for special service, and the remainder, totally unfit for military duty, could be returned to their former occupations in civil life, all better and wiser men for their experiences in the Army.

Serving Bread and Meat in Italian Restaurants.—A decree of the commissary general for supply and consumption of food provides that in restaurants, pensions, dining cars, cafés, milk shops, hotels and other public rooms in which food is consumed, bread must be served in thin slices, untoasted, not exceeding 2 cm. in thickness, and for each repast in an amount not exceeding 80 gm. In certain indicated refreshment rooms of a popular character, the bread served must not exceed 150 gm. for each meal. . . . For these refreshment rooms the form of serving in slices, as ordered for the other establishments, is not prescribed. The serving of cold meat, or meat prepared in any way whatever, sausage included, as a preliminary course, in the establishments mentioned, is prohibited.—*Commerce Reports,* Dec., 26 1917.

THE TRANSPORT SPLINTS OF THE AMERICAN ARMY

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Statistics show that somewhat more than 50 per cent. of gunshot wounds involve the bones and joints. The efficient splinting of these injuries at the earliest possible moment is universally acknowledged by all surgeons to be of the greatest importance for the following reasons:

1. It relieves the suffering of the soldier.
2. It saves time in transport.
3. It decreases the danger of shock.
4. It maintains alinement of broken bones.
5. It limits the spread of infection.
6. It prevents the further laceration of nerve, vascular and muscular tissue.

In August, 1917, it became evident to certain American surgeons who had been serving in British hospitals that entirely satisfactory splinting for transport could be accomplished with a small number of splints of simple pattern. The matter was called to the attention of the chief surgeon, American Expeditionary Forces, and a splint board for the standardization of splints for the medical department of the U. S. Army was promptly appointed by him and confirmed by order of General Pershing.

This board met, Aug. 28, 1917, and reported that with seven types of splints all bone and joint casualties could be adequately treated at the front. The board was then directed to write a manual. This manual, approved by General Bradley, chief surgeon, A. E. F.,

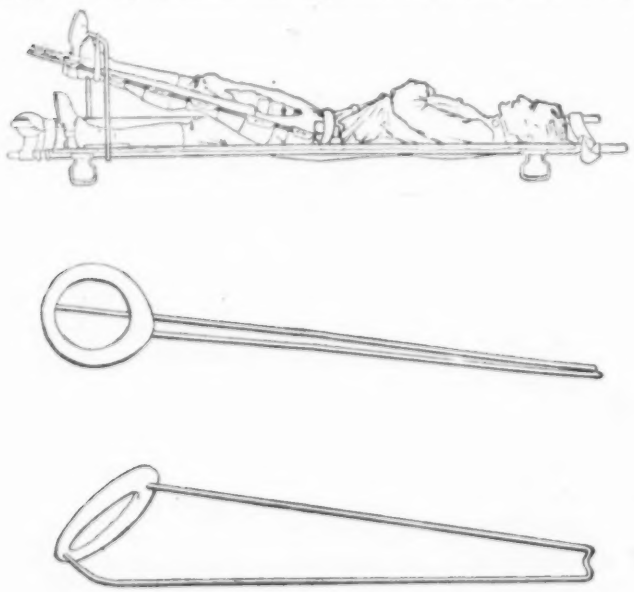

Fig. 1.—Thomas Traction leg splint.

and by General Pershing, was published in an edition of 25,000 and was available for predistribution to all the medical officers of the American overseas forces before our battle casualties began. The expense of publication was borne by the American Red Cross, by whom it was supplied to the Medical Department of the U. S. Army.

Considerations that influenced the selection of the standard splints were:

1. Efficiency as proved by experience.
2. Transportability in order that ample supplies might be carried forward.
3. Simplicity of design in order to speed up manufacture and assure adequate supply.
4. Ease of application in order that underlying principles might be readily grasped by regimental medical officers and easily taught to stretcher bearers.

The Thomas and Jones splints for the upper and lower limbs with the modifications in the Thomas traction arm splint devised by Major Murray of the

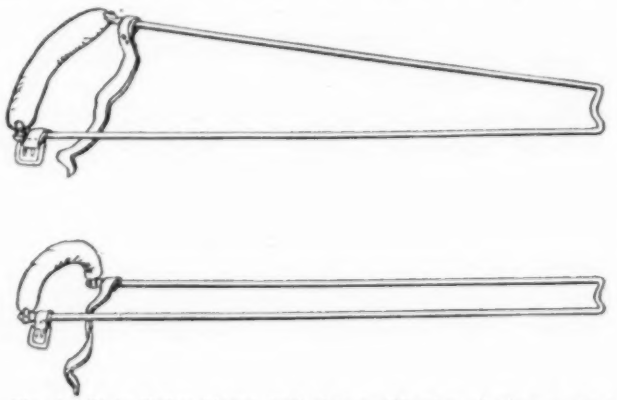

Fig. 2.—Blake-Keller hinged half ring modification of Thomas Traction leg splint.

South African Royal Army Medical Corps, and the modification of the Thomas traction leg splint devised by Lieutenant-Colonel Keller and Major Blake, represented the *pièces de résistances* of the group, embodying as they do the combined principles of integral fixation and traction. These two principles are of almost equal importance in most of the severe bone and joint injuries. There has been abundant demonstration of their value not only in the treatment of the present battle casualties but also during the fifty-odd years during which time they have been employed in civil life by Hugh Owen Thomas of Liverpool and his great successor, Col. Sir Robert Jones, R. A. M. C. They had not been as widely known up to the time of the present war as one might expect, but this lack of familiarity with them among surgical and orthopedic men has not been flattering to the profession's appreciation of true mechanical values.

Four splints were included for fixation only:

(*a*) The long Liston splint, necessary occasionally in fractures of the pelvis.

(*b*) The Cabot posterior wire splint, which is widely known in America.

(*c*) The Jones "crab" or "cock up" wrist splints. Form splints for fixation simply were included.

(*d*) A form of wire splinting material known as ladder splinting. The latter material is proving of great value on account of its extreme adaptability, lightness and cleanliness.

DESCRIPTIONS OF TRANSPORT SPLINTS

The following descriptions of these transport splints are taken from the Manual of Splints and Appliances referred to above and prepared for the Overseas Forces:

1. (*a*) *Thomas Traction Leg Splint* (Fig. 1).—The splint consists of a padded ring, slightly ovoid in shape, set on two iron wire rods at an angle of 55 degrees with the outer rod. The rods are three-eighths inch in diameter. At the inner and shorter of these two rods the ring is twice as heavily padded as at the outer, and the ring is symmetrically depressed at

either side of the inner rod to form a concavity which hugs the ischial ramus and fits snugly around the ischial tuberosity. The long and short diameters of this ring vary, since the splint as used by the British army comes in several sizes; but a ring of average size measures across the long diameter 9½ inchs and across the short diameter 9 inches. The outer rod descends from the ring vertically for 2½ inches and then inclines toward the inner rod. At the starting point of the inner rod the two wires are 8½ inches apart, and at the bottom they are continuous in an indented or notched end, 3½ inches in width, about which the traction bands are wound and knotted. (Nail or wood twister is inserted as in the Thomas arm splint.) The outside rod is 47 inches in length and the inside rod 42 inches in length. The space between the rods may be varied by bending them outward or inward. If desired, the splint may be bent at the knee.

(*b*) *The Blake-Keller Hinged Half Ring Modification of the Thomas Traction Leg Splint* (Fig. 2).—The splint consists of a padded half ring set on two iron rods three-eighths inch in diameter. (The indentation at the inner rod has been omitted, having in practice been found unnecessary.) The half ring forms an angle of 55 degrees with the outer and longer rod, and the ring is fastened to both rods by a stout joint which allows it to be moved through an arc of 180 degrees. At the junction of the inner rod and half ring is fastened a strap of webbing or leather, and at the junction of the outer rod and half ring is fastened a buckle. The posterior half ring is thereby kept in close apposition to the limb. The rods are the same distance apart and the same shape and size as in the Thomas leg splint. The space between the rods may be varied by bending them outward or inward. If desired, the splint may be bent at the knee.

The advantages of the hinged half ring modification of the Thomas splint are:

1. Ease of application without passing a complete ring, as in the Thomas splint, over the injured limb.

2. Ease of access to wounds of the groin because of the absence of the rigid anterior portion of the Thomas complete ring.

3. Possibility of use as an anterior leg splint for fixation and suspension, after the manner of the Hodgen splint.

4. Ease of packing for transport.

2. (*a*) *Thomas Traction Arm Splint* (Fig. 3).—The splint consists of a padded circular ring 7½ inches in diameter and two rods 34 inches in length. At the ring these rods are 7½ inches apart and at the bottom they are continuous in an indented or notched end, 2½ inches in width, about which the traction bands are wound and knotted. The space between the rods may be widened or narrowed by bending them outward or inward.

(*b*) *Murray's Modification of the Thomas Traction Arm Splint.*—The splint consists of a padded ring of the same shape and size as in the Thomas arm splint. The rods are made of the same wire and are of the same length and the same distance apart as the Thomas arm splint. The modification consists of a joint between the rods and the ring, either by means of a hinge 1½ inches below the ring or by making loops of the rod wires close to the ring, which loops receive similar loops at the upper ends of the rods. The purpose of the splint is to provide close apposition of the ring to the shoulder and thorax and still allow the injured limb to be brought to the side of the body—an important factor in recumbent transportation.

3. *Jones Humerus Traction Splint* (Fig. 4).—A padded half ring to fit in the axilla like a crutch, 7½ inches in diameter. The wire of the half ring is continued to form a complete circle, which is bent on itself at right angles to outline a quarter sector of a sphere. The right angle wire half circle extends out over the shoulder and upper arm and is not padded. The wire rods, one-fourth inch in diameter, descend from the center of the padded axillary crutch and from the center of the right angle unpadded shoulder portion of the ring. The inside rod next to body is 14 inches long and the outside rod is 18 inches long, curved outward slightly over the convexity of the deltoid. The rods terminate in indentations or notches about which the humeral traction bands are wound and tied. The rods then ascend for 4 inches, and at this point are bent at a right angle in the same plane as the humeral rods; they then extend forward for 12 inches, 4½ inches apart, to form a continuous splint for forearm, wrist and metacarpal fixation.

4. *Long Liston Splint with Bridge Interruption* (Fig. 5).—The splint consists of two pieces of flat wood of unequal lengths. The wood is one-half inch thick and 3 inches wide. The shorter of these two pieces is 14 inches long and to its upper end is fastened a wooden cross-bar, 9 inches long and 2 inches wide, penetrated at either end by an inch hole through which bandage material may be run for fastening the splint to the thorax. The longer of these two pieces of wood is 32 inches in length, and is perforated at the center through its lower 15 inches by small holes 2 inches apart; these holes receive the thumb screw set-nut of the foot piece. These two pieces of wood are joined together by a bridge of iron wire three-eighths inch in diameter; the span of this bridge is 9 inches and its elevation is 2 inches. The wooden foot piece is 12 inches in length, 4 inches in width and three-fourths inch in thickness, set at right angles to the lower leg splint and adjustable to different lengths of limbs, by means of the thumb screw set-nut and holes. If an abducted position of the limb is desired, the iron wire bridge may be bent to accomplish this purpose.

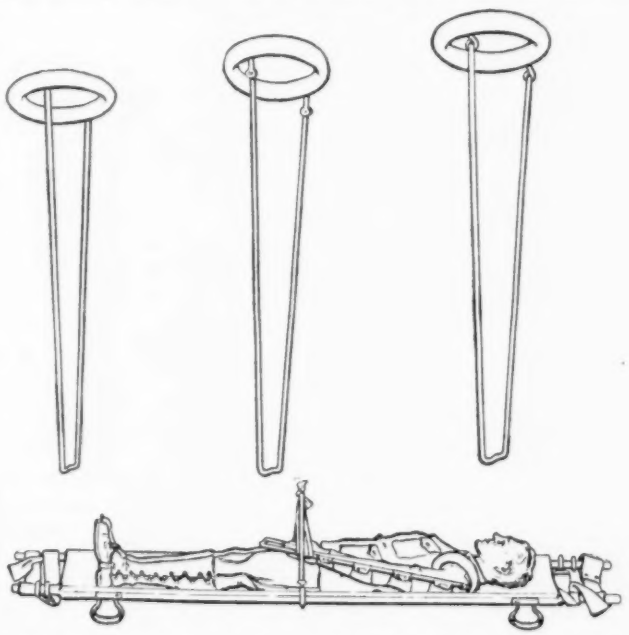

Fig. 3.—Thomas Traction arm splint and hinged modification for transport.

5. *Cabot Posterior Wire Leg Splint* (Fig. 6).—The splint consists of a quadrilateral form of one-fourth inch wire 7 inches in width at the upper portion, which is bent at right angles and concave to conform to the convex surface of the upper thigh. It narrows at the heel and at this point is bent upward to form a right-angle foot piece 12 inches in height and 4 inches wide. For use, this frame of wire is bandaged and padded and usually bent at the knee. It is retained in position on the limb by adhesive plaster straps. . . .

Splints made of light splint wood or the wire ladder splint material (to be described) are applied posteriorly and on either side of the limb, and are fastened and retained by webbing straps and buckles. The ease of application and adaptability of this splint present the danger of its too general employment. The board recognizes the frequent maltreatment encountered by the customary use of the ordinary ham splint and the straight posterior wood splint with a right-angle foot piece. The application of the posterior wire splint should be scrupulously restricted to wounds of muscular tissue, slight injuries to the knee joint, fractures of the fibula and injuries

to the ankle joint and tarsus not requiring traction in addition to fixation.

The traction and counter traction principle of the Thomas splint and its modifications should be maintained in all cases in which there is solution of continuity of the bone with the

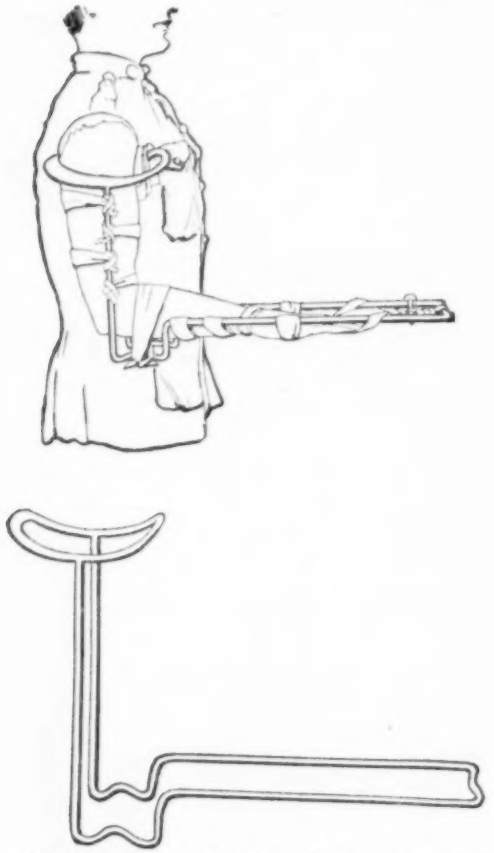

Fig. 4.—Jones humerus traction splint. The American pattern of the splint is here illustrated. By changing the pattern of the axillary crutch the splint is made adaptable to either side of the body. By slightly lengthening the forearm piece, traction on the forearm may be obtained.

possibility of displacement of fragments, or when the traumatic lesion of the joint is likely to result in serious infection and muscular contracture.

6. *Jones "Cock Up" or "Crab" Wrist Splint* (Fig. 7).—To a piece of thin sheet iron, about 8 by 4 inches, shaped like a hollow trough, a flat soft-iron rod, three-fourths inch in width and one-eighth inch in thickness, is riveted. This flat iron rod extends distally from the sheet iron trough about 10 inches, bending upward at about 6 inches distally from the edge of the trough. At the distal end of the rod is riveted by a single rivet a very light flat iron crossbar, 5 inches in length and turned up at either end. At 4 inches distally from the trough is riveted a very light flat iron crossbar, 3 inches in length.

Any degree of dorsal flexion of the hand may be obtained by varying the bend of the central iron rod. The splint is applied to the forearm and metacarpophalangeal junction of the hand and retained by bandages or adhesive plaster. It should be used in cases of partial or total "wrist drop." If it is desirable to retain a fully extended position of the fingers, a piece of splint material, to be described, may be used as a "cock-up" splint.

7. *Ladder Splint.*—This ladder splint material is made of galvanized iron wire one-eighth inch in diameter, two pieces running parallel to each other about 3½ inches apart. At one end the wire is continuous and forms a terminal 3½ inches in width. The lateral wires are joined by small one-sixteenth-inch wires slightly arched at a distance of three-fourths inch from each other. This material is furnished in 30-inch length, and may be cut by a file or heavy wire cutters into lengths for coaptation splints, or for the fixation of the hand, foot, forearm, elbow or knee.

8. For transport in arm or leg cases, a quadrilateral iron stretcher bar (Figs 1 and 3), snapping on the sides of the litter, is essential. This extends upward about a foot over the patient like a bridge, and to it is slung the leg or arm splints. It adds to the fixation, wards off jars and knocks, and adds greatly to the ease of the patient.

TYPES OF INJURY

In the order of their importance, the various types of injury are:

1. *Fracture of the Thigh.*—In the experience of the British and French armies, fractures of the thigh have proved to be among the most serious of gunshot wounds, both as regards mortality and as regards future function. Severe shock, nonunion, malunion with shortening and bowing, persistent infection and osteomyelitis have been all too common. There is a very general agreement among British and American surgeons of experience that the best method of preventing these untoward results is the Thomas traction leg splint.

2. *Fractures Into and Penetrating Wounds of Joints.*—Immobilization is here the first requisite, but traction is often a very close second. Here again the Thomas traction arm splint (Murray hinge modification for transport), Thomas traction leg splint or the Blake-Keller hinged modification are of greatest value for both purposes. The Cabot posterior wire splint combined with side splints of the ladder splinting material or light splint wood offers comfortable and efficient immobilization for the joint when traction is unnecessary.

The ladder splinting material capable of being bent in any angle or series of angles furnishes excellent fixation for the shoulder and the smaller joints.

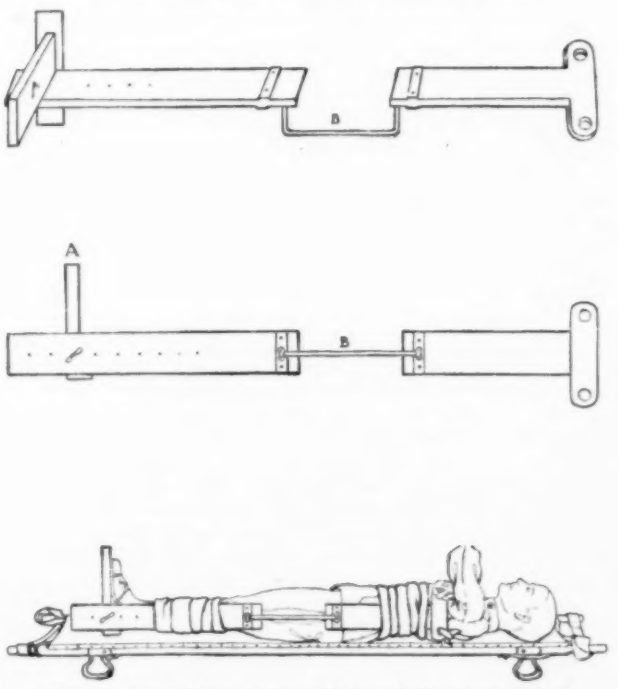

Fig. 5.—Long Liston splint with iron bridge interruption.

3. *Fractures of Both Bones of the Lower Leg.*—Traction is always advisable as well as immobilization. It is often difficult to apply to fractures near the malleoli. In the field, if the foot is uninjured this serves, traction being secured by means of an anklet laced over the foot or some form of nonconstricting bandage loop, such as a clove hitch. If the foot is

injured, a low cut lacing anklet to which traction bands are attached may be applied over generous padding.

4. *Fractures of the Pelvis.*—It is impracticable to apply plaster-of-Paris dressings at the front, and in these rather rare injuries the long Liston side splint with the iron bridge interruption and adjustable front piece offers the best immobilizing device for transport.

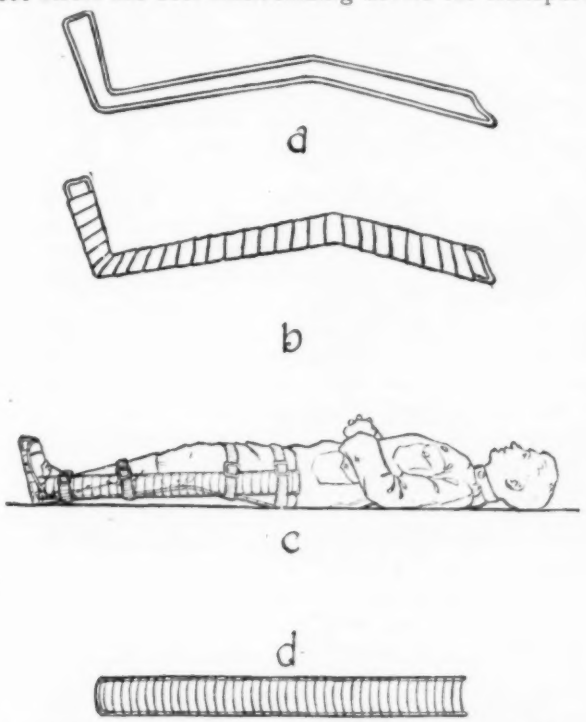

Fig. 6.—Cabot posterior wire splint (*a*) in skeleton, (*b*) bandaged, (*c*) applied with side splints of ladder material; (*d*) ladder splint material.

The purpose of the iron bridge interruption is to leave the pelvic wound free from pressure and also to make possible an abduction position of the lower limb. With a padded band passing through the opposite groin and fastened to the holes in the transverse crossbar at the upper end of the splint, traction may be obtained by fastening the traction band to the lower end of the splint or to the adjustable foot piece.

5. *Fractures of the Shaft of the Humerus.*—These fractures are of importance chiefly because of the frequent involvement of the musculospiral nerve. Complete loss of continuity is more rare than traumatization and loss of conductivity. It is often impossible to determine before a definite operation is performed how serious a nerve injury has taken place. In every case of wrist drop, whatever its cause, the hand is put up in dorsiflexion, usually in a Jones "crab" or "cock up" splint, and the fracture of the humeral shaft treated by traction and fixation in a Thomas traction arm splint (Murray's hinged modification for transport) or a Jones traction humerus splint.

6. *Fractures of Both Bones of the Forearm.*—For these a Thomas traction arm splint (Murray's hinged modification for transport) is most satisfactory. Only light traction is necessary, and care must be taken in applying a nonconstricting "hitch" of bandage about the wrist in order that congestion of the hand does not result from too severe and too prolonged traction. Traction by means of straps sewed to a glove is safer. The hand should be slightly supinated.

7. *Fractures of the Spine.*—These are rare but, of course, extremely serious. In some advanced battalion dressing stations, Bradford gas pipe frames are available, and a long Liston splint in combination, if possible, with such a frame offers perhaps the best fixation available.

TRAINING OF REGIMENTAL SURGEONS AND STRETCHER BEARERS

The division of orthopedic surgery, under the senior consultant, Lieutenant-Colonel Goldthwait, and the assistant consultant, Lieutenant-Colonel Allison, has been given charge of the splinting at the front. Orthopedic surgeons are assigned to the combat divisions under the division surgeon. Talks are given to the regimental surgeons and to the enlisted men of the Medical Corps, especially to the stretcher bearers. Splint drills are held and methods of application demonstrated.

The Thomas traction leg splint drill, originated by the British and carried out in our armies as well, will illustrate the type of instruction given. The steps are given as Orders 1, 2, 3, etc. The British record for complete application is two minutes, and the stretcher bearers are expected to be able to apply it in less time than six minutes.

Splint Drill.—The "Thomas outfit" consists of:

A stretcher on trestles; three blankets; primus stove; Thomas splint (largest size); reversible stirrup (Sinclair's); suspension bar; three flannel bandages (6 yards); four triangular bandages; pressings; safety pins; Gooch splinting (10 by 6 inches and 8 by 6 inches).

The personnel required consists of an operator, No. 1 assistant and No. 2 assistant (if available).

When not in use the splint is kept hung up. The five slings of flannel bandage are rolled round the inner bar of the splint, the leather is kept soft by saddle soap, and the iron bars are smeared with petrolatum.

The indications for front line application are:

1. For all fractures of the thigh bone, except where there is an extensive wound in the upper part of thigh or buttock which would interfere with the fitting of the ring.

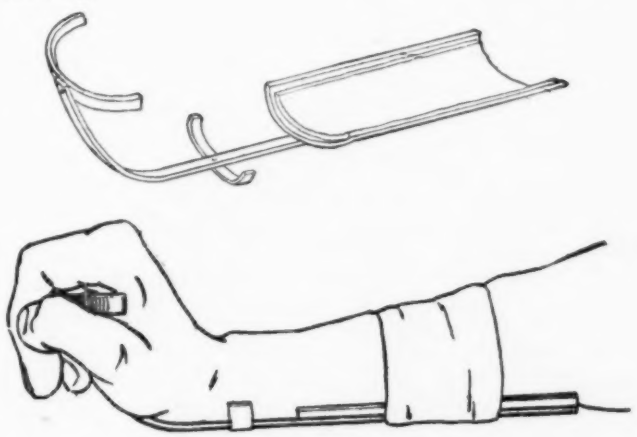

Fig. 7.—Jones "cock-up" or "crab" wrist splint.

2. In severe fractures of the knee joint or upper part of the tibia.

3. In certain cases of extensive wounds of the fleshy part of the thigh.

DETAILS OF THOMAS SPLINT DRILL

1. *Warning* (Rechauffment).—On the word "one," the stretcher, placed on trestles with a primus stove beneath, is prepared as follows: The first blanket is folded lengthwise

into three; two folds lie on the stretcher, one hangs over the side. The second blanket is arranged in the same way, one fold hanging over the other side of the stretcher.

The patient now is placed on the prepared stretcher and lies on four folds of the blanket, the two folds hanging down form a hot-air chamber. The third blanket is placed across the patient's chest, while the splint is being applied.

II. *Extension.*—On the word "two," the No. 1 assistant stands at the foot of the stretcher facing the patient and opposite the injured limb. Grasping the heel of the boot with his right hand and the toe with his left, keeping the arms straight, he exerts a steady pull, thereby producing the necessary extension.

The No. 2 assistant stands by the injured part and supports the fracture above and below.

III. *Clove-Hitch.*—On the word "three," to form the clove-hitch, the operator takes a length of 9 feet of flannel bandage. Holding it in the left hand by its midpoint, he grasps the center of the left half with his right hand, palm to the right, and makes a loop which is carried up and passes behind the left hand, thus forming a clove-hitch with a diameter of 10 inches. This is applied over the boot, with the short end on the outer side; the long end is carried under the instep, up and through the loop round the ankle. The two extension bands thus produced are ready to be attached to the splint later on.

IV. *Splint.*—On the word "four," the operator threads on the splint, No. 1 assistant removing the reapplying upper and lower hands alternately to allow the ring to be passed over the foot. The splint should be pushed up under the buttock as far as possible, care being taken to keep the notched transverse bar horizontal.

No. 2 assistant, as before, steadies the thigh.

V. *Fixation of Leg.*—On the word "five": 1. The extension bands of the clove-hitch are tied around the notched bar at the end of the splint as follows: The outer band is passed over and under the bar, and then round the notch drawn taut, and held over to the opposite side. The inner band is passed under and over the bar, then also round the notch where it crosses the first band and prevents its slipping. The two are finally tied off by a half bow.

2. The middle flannel sling is tied behind the knee, which is held partly bent by No. 2 assistant.

3 and 4. The slings behind the ankle and the calf are tied, so that the leg now rests in a shallow trough, with its center on a level with the long bars of the splint.

5. To prevent the leg rising off the splint, the center of a narrow fold bandage is placed across the leg, just below the knee, the ends are carried down between the leg and the splint, brought up outside the bars, and then tied off in front of the leg. The lower limb is now firmly fixed in a position of extension, and it may be moved freely without causing pain to the patient or damage to the injured part.

VI. *Dressing Wound of Thigh.*—On the word "six," the wound is exposed by cutting away the overlaying portion of trousers on the front or back of the thigh, and the dressings are then applied.

VII. *Gooch Splints and Bandages.*—On the word "seven," the Gooch or coaptation splints are applied. The short piece is placed behind, and secured by tying the remaining two slings. The long piece is placed on the front of the thigh, care being taken to avoid pressure on the knee cap. The whole is now retained in position by the two narrow fold bandages, carried round the thigh outside the bars of the splint.

VIII. *Stirrup and Figure of Eight.*—On the word "eight" the stirrup is sprung into the splint above the ankle, its foot toward the stretcher. A bandage is then applied to form an additional sling and by a figure-of-8 turn to prevent lateral movement of the foot.

IX. *Spanish Windlass.*—On the word "nine," the extension bands are tightened, and a small piece of wood or a nail is introduced to increase the tension by twisting up as required.

X. *Pad in Ring.*—On the word "ten," a pad is placed inside the ring on the outer side of the thigh to act as a wedge and prevent undue movement.

XI. *Suspension Bar.*—On the word "eleven," the suspension bar is fitted to the stretcher with the "feet" away from the rackets. The splint is slung up three fingerbreadths from the horizontal part of the suspension bar. To damp down the side movements, lateral tapes are tied to the uprights. For the journey in the motor ambulance an additional band may be passed from the splint round one handle of the stretcher.

XII. *Hot-Water Bottles and Blankets.*—On the word "twelve," hot-water bottles are applied. The third blanket is folded into two lengthwise, and laid over the patient. The hanging folds of the first and second blankets are brought up over this so that the patient is evacuated with four folds of blanket in front as well as behind.

EFFICIENCY IN OUR ARMY

It will be a satisfaction to American surgeons to know that splints are being applied in our armies as soon after the injury is received as in any of the other armies, and perhaps even a little earlier. Frequent "checking up" inspection at the front seems to show that the talks and drills and preparations have been very much worth while, for the splints are being applied quickly and extremely well. The supply of splints furnished the Army by the American Red Cross in Paris has been adequate and the splints have been extremely well made. A system of exchange and repair has been worked out, and every battalion and post and dressing station has an ample supply which is constantly maintained.

There is every reason to believe this efficiency will continue and that we may expect less shock and better end-results.

A RECENT SURGICAL SERVICE AT THE AMBULANCE DES ALLIÉS

JOHN J. MOORHEAD, M.D. (NEW YORK)
Major, M. R. C., U. S. Army
FRANCE

What follows is a summary of the operation performed on 132 patients during an active period of the recent spring offensive. This formation suddenly found itself in a position in which front line work became imperative, and at first the staff consisted of Major George de Tarnowsky, M. R. C., and myself. Later each of us had the assistance of the following M. R. C. officers, who remained for varying periods: Capt. R. M. Keating, Capt. Philip Wilson, Capt. Charles Farmer and Lieut. T. Hardy, the two last named still being on service. In the first stages of the offensive the tour of service was necessarily continuous; later the service was divided into periods of ten hours operative service, three teams (*équipes*) acting in rotation, one of these consisting of French surgeons, the other two being American. The nursing operating room personnel is on duty each alternate twenty-four hours. One operating room was used, two tables of the removable top, easy rolling variety providing adequate facilities.

For the purposes of description, it can be said that the work automatically divided itself into periods which may be termed active period, relative calm period and calm period, each corresponding to the military conditions prevailing. The majority of the injured were French, some were English, a few were German. On an average the patients were received within a period of six hours after injury. Most of them had received a primary dressing and tetanus

antitoxin before arrival. The vast majority were of the *grand blessé* (severe) type, as this formation was designated to receive that group exclusively when conditions permitted; obviously this rule could not always be made absolute. In the early stages, lack of personnel and the rush of many injured made it impossible to avail ourselves of preliminary roentgen examination; despite this, over 80 per cent. of foreign bodies were removed. Except for the first few days, all the patients were kept long enough to approximate the end-results.

TYPE OF INJURY

The cranial injuries were notable because the frontal and parietal regions were almost exclusively affected. In all cases, shell fragments were the causative agent, the wound of entrance was relatively small, the bone fragments were deeply driven into the brain substance, and the internal table was much more extensively broken than the external. In but one case (inoperable) were focal paralytic symptoms marked; in this, necropsy demonstrated that a small shell fragment had entered the left parietal region, traversed both hemispheres and became embedded on the other side directly under the skull almost opposite the point of entry. Treatment in the operative cases resolved itself into extraction of the shell fragment if accessible, complete closure with silkworm-gut ("crin de Florence"), and drainage if complete excision of the traject could be made in cases received within twelve hours of injury. The drain was removed at the end of twenty-four hours, as a rule, and healing was unusually kindly in nearly all of the cases. This class of case should be subjected to a period of hospitalization varying from twelve to twenty days. It is worthy of note that cases showing postoperative commotion are often relieved by spinal puncture; this also is efficient for the headache so often complained of. The type of intercranial injury encountered in this group resembled very closely the cases seen in civil practice; indeed, the comparison between civil and war surgery was closer in this type of case than in any of the others.

THORACIC INJURIES

Thoracic injuries were, generally speaking, of two types, those with and those without a widely opened chest cavity. Either may be associated with hemothorax of varying grades, but in nearly all, dyspnea and evidences of shock made diagnosis apparent on mere inspection. All of these patients were much benefited by preliminary shock treatment (heat, elevation of foot of bed, and salt solution subcutaneously or intravenously). A single hypodermic of morphin acted well for most of them. Immediate operation was not performed unless an open, gaping wound made interference urgent. Great relief was obtained by a tight dressing acting as a patch over the hole in the pleura.

One patient with two wounds of the upper anterior chest wall was operated on at once because of urgent dyspnea, cyanosis and signs of large hemothorax. The lower wound was first excised down to the place of entry in the seventh interspace; it was then closed completely in three layers. The upper wound was then exsected, 3 inches of the fourth rib being removed. A large collection of blood was evacuated by twice rolling the patient on his side. The upper lobe of the lung was then brought into view through the aid of wide retraction. Two small holes were identified and found not to be the source of hemorrhage. Several splinters were removed from the third rib, ether was poured into the chest cavity, and then three layers of sutures (pleura muscle, fascia and skin) gave an air-tight closure. Several of the penetrating wounds required no intrathoracic manipulation; in these, treatment consisted of exsection of the soft parts, ether cleansing, layer suture and a small drain.

Reeffusion is treated by aspiration, if dyspnea is marked; if not, it is allowed to subside spontaneously. Emphysema of the chest wall was of common occurrence, but it regularly subsides without interference and is of no importance. In cases in which the foreign body has not been removed, fluoroscopy should be employed as soon as practicable. Secondary removal of embedded fragments (preferably under the fluorescent screen method of de la Villon and others) should not be practiced until the stage of subsidence is reached, unless there are strong indications to the contrary. The ease with which the lung can be drawn through the chest wall is very striking. The line of approach should be chosen to avoid getting too close to the pectoral fold, and for that reason it is often better to enter the cavity through a special opening so placed that the necessary inspection of the inner wound of entry may be made. The pneumonia these patients subsequently develop is often associated with effusion; but, as stated, the latter needs attention only if respiration is greatly embarrassed or signs of infection appear. A number of our patients had wounds in the scapular region leading to the chest cavity in the upper or posterior portions; all of these went on to recovery without intrathoracic intervention. For the first three days after the operation all the patients had high temperature, rapid pulse and respiration; many of them also had mucosanguineous expectoration and more or less frank signs of pneumonia. A semi-seated position was found to give great comfort. Morphin or codein was used as required, respectively, for restlessness, pain or cough.

ABDOMINAL INJURIES

Abdominal injuries were of two main types, one in which the abdomen was penetrated directly through the parietes, and one in which the penetration was indirect as from the lumbar, gluteal or other regions. These patients usually entered in a state of shock; the majority of them had vomited; all had abdominal rigidity and localized tenderness more or less marked. The diagnosis in the first type was perfectly apparent; in the second, diagnosis was usually made after the wound traject had been followed far enough to show that it led to or in the direction of the abdomen. Our experience has made us very chary of ruling out the possibility of associated abdominal injury in any wound of the lower lumbar or gluteal region if the shock seemed disproportionate to the site and general appearance of the wound, and if there was complaint of abdominal pain with or without rigidity or local tenderness.

Several of our patients entered with a diagnosis of wounds of the gluteal or lumbosacral regions; at operation these wounds were found to lead intra-abdominally, requiring laparotomy. One of my patients had a wound of the sacral region with a fracture of a sacral arch leading to the abdomen; a laparotomy revealed no intra-abdominal lesion, and the foreign body was removed retroperitoneally from the region of the iliac wing. This patient had a fracture of a

spinous process and two arches of middorsal vertebrae without intraspinal injury.

When laparotomy becomes necessary, it seems wisest to enter the abdomen by the route that will most efficiently bring into view the viscera supposedly involved. For this reason the original wound of entry is not often well placed, however large it may be, or however tempting approach through it may appear to be. The classical medial incision or those through or at the side of the rectus are of great value; but the operator must be prepared to make incisions far longer than anticipated, often, indeed, nearly at right angles to the original line of approach. Patients with massive intra-abdominal hemorrhage rarely reach the operating table so that the great majority are examples of more or less slow bleeding from wounds of the liver, stomach, spleen and intestine. The wounds are often multiple, requiring long, careful, methodical search. As in civil practice, it is well to remember that the stomach may still retain all its contents, even though there is a large sized hole in its upper half.

In any case in which there is even a fair suspicion of intra-abdominal entry, it is much the safest rule to perform laparotomy at once. Contusion of the intestinal wall without definite tearing is a puzzling problem; if the wall is dark and lusterless, then it seems better to resect in view of the possibility of subsequent gangrene or infective necrosis. I am reasonably certain that my failure to resect in one case was in great part responsible for the fatal outcome in a case of this type showing a perforation of the stomach and a long contusion of the descending colon. Drainage should not be used unless the original wound is made the zone of approach; then the drain should be used only to prevent the formation of a hematoma of the soft parts, assuming, of course, that adequate exsection of damaged tissue has been possible.

JOINT INJURIES

Penetrating wounds of the knee joint were relatively frequent, and next, penetrations of the elbow, wrist, shoulder and ankle joints. The routine treatment was exsection of the traject, exposure of the joint, irrigation with ether, removal of all foreign material (including blood), adequate hemostasis, lavage with ether, closure of the joint coverings, the soft parts and the skin in three separate layers, and draining subcutaneously when reaccumulation of blood was feared, but not otherwise. In the knee, lateral approach was preferred by a single vertical incision alongside the patella, and if that did not suffice, a similar incision was made also on the opposite side. In no case was it necessary to make the so-called U-incision by which the patella tendon is divided close to its attachment to the tubercle of the tibia. Before closure, all joints exposed were examined in a position of flexion as well as extension. If fragments of bone were loose or detached, they were removed; otherwise they were curetted and allowed to remain. Postoperative splintage was used in the knee cases for three days, but passive motion was commenced within twenty-four hours and continued daily. After the splint had been removed, a pillow was placed under the knee and each day raised higher until a right-angled position had been attained, and then the height was gradually decreased until full extension was reached. After the sutures had been removed (from eight to ten as a rule), active gradually increasing motions of the joint were insisted on; if reaction occurred therefrom, the joint was kept quiet until such evidences disappeared. In no case was it necessary to perform postoperative aspiration for reeffusion. The knee cases did better than the rest, the elbow better than the ankle or wrist. The proximity of exposed tendons, as in the ankle or wrist, seemed to introduce a complicating element of tenosynovitis.

BLOOD VESSEL AND NERVE INJURIES

Injuries to the blood vessels and nerves were not especially numerous. There was one case of injury to the popliteal vessels requiring ligation, and subsequently, amputation of the upper thigh for gangrene. A case of injury to the brachial vessels also called for ligation, and the next day amputation at the shoulder joint became necessary because of gas gangrene, and death followed. Both of these patients entered with a tourniquet, which had been in place eight and four hours, respectively. Several patients had marked bleeding from the vessels, especially the veins in the region of Scarpa's triangle. In the calf, the posterior tibial and its branches were occasionally involved. When a main vessel had been affected, experience taught us to be exceedingly careful to exsect adjacent soft damaged parts widely, and in all cases it seemed much wiser to leave the wound entirely unsutured.

The nerves most affected were the ulnar, median and peroneal. When possible, immediate suture was attempted; and in all, splintage was so arranged to prevent the anticipated contracture.

FRACTURES

Fractures were designedly assigned to another formation, and those treated by us were complications of severe injuries to soft parts with and without hemorrhage. The scapula was most often involved, next the skull (frontal and parietal), and then the ribs, the bones of the forearm and the leg. In all instances, the entirely detached bony fragments were removed, while the others were allowed to remain after thorough cleansing and curetting. Primary complete suture of overlying soft parts was attempted if the conditions permitted (see below), and suitable splintage was applied. If the involved bone was close to the surface (as in the crest of the tibia and the spinous process of the vertebrae), healing seemed to be much interfered with. Otherwise convalescence was almost as uneventful as if the bone had been undamaged. A detached bony fragment appears to be in effect a foreign body, just as potentially troublesome as a retained shell fragment; for this reason, the removal of the one is as necessary as the removal of the other.

Joint fractures were treated after the manner of joint injuries, and no permanent splintage was used unless the line of fracture was extensive or involved more than the articular surfaces. One such case affected the external epicondyle of the humerus to the extent of pulverizing it, splitting also the head of the radius (seton type of wound). The bony fragments were removed from the humerus, the joint was closed, the soft parts and skin separately sutured, and the elbow was placed in a position of hyperflexion. Primary union was obtained.

SUPERFICIAL INJURIES

Superficial injuries were found to be exceedingly deceptive in that the size, source, site and general appearance of the external wound was no accurate

gage as to the extent of the underlying damage. For purposes of classification, all such wounds in order of frequency may be said to be penetrating, seton type (wound of entry and exit), tangential (gutter shaped) or superficial (practically abrasions). All were subjected to the routine of exsection of the skin at the place of entry and exit, care being taken to remove only a slice of skin, as that is adequate. The skin incision is then enlarged so that the damaged underlying parts are brought fully into view. Frayed, bruised or discolored tissue is then removed, in a wedge shaped mass when possible, the whole traject being thus treated. Under guidance of the eye, the foreign body is thus brought best into view, and no attempt is made by finger search to reach the missile unless the traject is lost to view. The finger or an instrument readily makes a false track and greatly interferes with the essential idea of complete exposure of the traject under the guidance of vision—*ouvert à ciel* (open to heaven) as the French so aptly term it. Not a fiber of damaged tissue should be left behind, muscle and fascia being especially well removed. All loose or hanging edges should then be trimmed away, and hemostasis made as rigid as possible after the foreign body, including all important clothing or dirt, has been removed. The entire cavity is then flooded with ether or some other chosen antiseptic; ether was used by us because of its antiseptic and hemostatic qualities, and also because it left no residue after evaporation. It has been demonstrated to be very efficacious in destroying gas gangrene organisms so prone to lurk in muscle tissue.

The treatment thus accorded is fundamental, is the basis of all treatment for war wounds, and is the essential element of success. Suture of the deeper layers was not made unless muscle or fascial layers had been cut transversely; in such an event, interrupted catgut stitches were inserted freely enough to coapt without tension. The skin was brought together by interrupted stitches of silk or silkworm-gut. These successive steps are called by the French *excision* (cutting away), *débridement* (removing débris), *épluchage* (peeling or plucking away), *hémostase* (hemostasis), and *suture* (suturing).

There are two plans to carry in mind so far as final healing is concerned, these depending on (*a*) the time elapsing between the receipt of injury and arrival at the hospital, and (*b*) the type site and extent of the lesion. We may aim first for primary suture (*suture primitif*, or *suture primaire*); second, for delayed primary or primosecondary suture (*suture primitif retardée*), and third for secondary suture (*suture secondaire*).

Primary suture should be undertaken only in selected cases, namely, those received within the first twelve hours of injury, those in which complete excision, débridement and removal of the foreign body can be made, and those in which subsequent hematoma formation is unlikely. The classes of wounds denominated above as seton, tangential and superficial most readily lend themselves to this class of treatment. It is very unwise to attempt primary suture unless the patient can remain at least seven days under direct observation. Wounds of well muscled parts, like the thigh, hip and calf, are dangerous to close completely. Any wound showing much fraying or bruising of tissues should not be subjected to tight closure. Damage to main vessels is an absolute contraindication to primary suture; likewise the preliminary use of a tourniquet makes tight suture altogether unsafe. In a general way it can be said that primary suture is a method to be attempted only after reasonable experience with other methods.

A modification of complete suture is adapted to that class of cases in which one angle of the wound is left open for drainage; this may be termed partial primary suture (*suture primaire partielle*). If rubber tubing drainage is used, it should be removed not later than forty-eight hours later because of the necrosis induced, especially at the edges of the skin. A few strands of "crin" makes an excellent drain; gauze should be used only when oozing is to be controlled or wound-edges are to be designedly held apart.

Delayed primary or primosecondary suture implies that all the steps of treatment are given as in primary suture except that suture has not been made, either because the patient was not received within twelve hours or there was doubt as to the propriety of immediate suture, or the rush of work prevented completion of the work. Accordingly, a sterile dressing is applied, and within the succeeding three to six days the final step of suture is accomplished, provided infection has not meanwhile developed. This is a safe method; it practically brings about cure as rapidly as if the initial steps had been complete; it is the method of choice in a great many instances. This procedure has the added merit of making transport from one hospital to another relatively free from danger. Some of these cases can be sutured by the use of local anesthesia, others by the aid of ethyl chlorid anesthesia; some even require only strapping by adhesive plaster. This procedure is to be strongly commended because it is surgically safe and adequate.

Secondary suture is adapted to those cases in which infection has developed and has been brought under control by means of antiseptics. The best time for this sort of closure is usually between the tenth and the sixteenth day if the bacterial conditions permit. The granulations should be disturbed as little as possible, but the edges of the skin should be shaved off and the skin margins undermined enough to bring about union without tension. Drainage should be used only if oozing cannot be controlled; in such an event a few twisted strands of "crin" will prove adequate.

The first and second methods rely for their efficiency on the complete mechanical removal of all sources of infection through the agency of the scalpel or scissors; the third method is effective because infection is removed by chemical means. The two great sources of infection to be feared are the streptococcus and gas gangrene (*Bacillus perfringens* of the French) invasions; a latent infection by the latter is less likely to prove harmful than the former, for this organism is known to exist in a relatively nonvirulent form in many cases. Secondary suture should not be undertaken except under strict supervision if either of these organisms (especially the streptococcus) is demonstrated to be present. The bacterial count is an accurate guide to the time for suture, but for practical purposes a clinically healthy wound will heal kindly in the vast majority of cases even in the presence of an occasional streptococcus.

Whatever method of suture is chosen, there is usually a rise of pulse or temperature for the first forty-eight hours; a rise of pulse or temperature to 100 is in fact the rule rather than the exception. The

wound edges may sometimes appear puffy and reddened in this initial interval, but a wet dressing of saline solution will usually cause a subsidence of these signs. If infection does appear in a sutured wound, the removal of one or two stitches may afford drainage enough to allow of subsequent healing, and all the stitches should not be removed unless the signs are marked or bacterial examination shows streptococci, assuming, of course, that no general signs of infection appear. If no infection appears at the end of the third day, healing is quite likely to terminate satisfactorily.

Keeping the parts at rest by the aid of a splint is an added factor of safety; splintage is all important to counteract threatened contracture when nerve or muscle injury complicates. In this connection it is important to note before operation what evidences of neural damage exist. Preoperative examination is much needed in multiple injuries to determine which injury demands most immediate attention, and the wound apparently requiring the longest attention should be first treated, so that the patient may not become too severely exhausted. Other things being equal, except in the case of hemorrhage, a wound nearest to a main cavity or joint should receive first attention. When possible, two surgeons should operate at the same time on a patient with many wounds, opposite sides of the body being chosen so that one operator may not interfere with the other. An overhead frame of metal or rope will be found a great convenience to support limbs, thus doing away with the need of an orderly for this purpose.

Our experience abundantly showed that subsequent infection was directly proportionate to the success of the initial excision of damaged tissue. In other words, infection in cases in which operation had been performed indicated that the removal of involved soft or hard parts had not been radical or early enough.

The routine after-care consisted of daily dressings of gauze soaked in saline solution or eau Mencière, the latter consisting of guaiacol, 500 gm.; benzoic acid, 100 gm., and alcohol, 400 gm. Ten gm. of the foregoing to 1 liter of sterile water made the solution ready for use. When the granulation stage was still further advanced, a spray of Mencière's solution was often used. The formula of this is: iodoform, guaiacol, balsam of Peru and eucalyptol, of each 10 gm.; alcohol, 100 gm., ether, enough to make 1,000 gm. Not only are these Mencière preparations antiseptic, but also they provide the necessary nonadhering qualities so desirable. Hypochlorite solutions were not used because our available supply was exhausted. The Carrel technic was used in a few cases in which intermittent instillation was needed to control spreading infection.

Two cases of gas gangrene developed, one in a case of multiple wounds of the thigh and abdominal viscera, the other in the already mentioned case of severance of the brachial vessels and subsequent amputation. Both of these patients had tourniquets applied for several hours prior to admission. In the English army the tourniquets have been wisely abandoned, and there seems to be no good reason why bleeding vessels cannot at least be clamped in the dressing stations even if the hemostats are included in the dressings and ligation omitted in the press of work. The danger of the tourniquet is not only because it robs the tissues of main blood supply, but also because the muscles are thereby extensively bruised, ischemia occurs, and minute hematomas are induced at a long distance from the original focus, all combining to make exactly the prerequisites for gas gangrene infection. In our cases of injury to the main vessels we invariably found the involved vessels blocked by clots so that hemorrhage did not usually occur until reasonably wide exposure had been made.

We found it wise to cut out fascia at right angles, especially the fascia lata, so that it would not unduly constrict underlying muscle. The interlacing gluteal muscles require extensive excision to provide adequate approach and drainage. So much oozing is thus induced that gauze drainage was more often needed in this region than in any other; to a lesser degree the same pertains to the muscles of the upper thigh. Any wound of the femoral region must be approached with care because the vascular supply is so ample that troublesome bleeding is likely to be encountered. One of our French confrères called our attention to a simple approach to the often involved posterior tibial vessels. An incision is made exactly in the middle of the calf, the gastrocnemius is cut through, exposing the soleus, and this also is incised, bringing into view the vessels sought for.

A review of the anatomy of the arm, forearm, thigh and leg is helpful and necessary, for at any time the operator may be confronted by a wound of known entrance but of unknown direction. Missiles never seem to traverse the same route in any two cases; but one rule as to their direction seems fairly constant, namely, that occasionally a ridge or point of tenderness gives fairly reliable information as to the route traversed. The larger the foreign body, the more easily is it removed, the better the chances for adequate extraction, and the less the consequent infection unless main vessels have been damaged. If a foreign body cannot be removed, it is unwise to suture unless adequate drainage can be provided, unless it is definitely known that the missile is small, lodged in an unimportant place, and that sufficient excision has been made. Unremoved foreign bodies are best removed about the third day, at which time primosecondary suture can be made. This removal is often possible by means of forceps introduced under the guidance of the fluorescent screen (method of de la Villon and others). In this manner I removed a tiny fragment from the lateral process of the fourth cervical vertebra after an extensive dissection had been made in vain three days before. The wound had been left lightly sutured with ample drainage, and primosecondary suture gave a line of union quite as good as if primary suture had been done at the first sitting.

Amputations were exceedingly uncommon; those that were necessary were of the "chop" variety, in which the bone was cut just above the level of the soft parts, the entire wound being left widely open. In this type of case, and in many wounds of the soft parts, adhesive plaster strapping does much to bring about coaptation.

SHOCK AND HEMORRHAGE

Shock and hemorrhage are difficult to differentiate, indeed, often coexist. As a general rule, patients with shock begin to show rapid improvement as soon as much needed external heat has been applied. The importance of having well heated beds cannot be overestimated, and the addition of a cradle from which electric bulbs are suspended is of great value. A special hot room (*cellule chauffante*) for patients with

shock is absolutely necessary. Some special member of the staff should be ready at all times to administer necessary intravenous stimulation. Most of our fatalities from shock were due to intra-abdominal hemorrhage in those cases regarded as inoperable, and so proved to be by necropsy. There were no instances of secondary hemorrhage in our series. We found that our patients readily absorbed large quantities of fluid introduced by rectum.

TETANUS ANTITOXIN

Tetanus antitoxin had usually been administered prior to the arrival of the patient; but if not, it was immediately given. All patients had a second dose of tetanus antitoxin between the tenth and the fourteenth day. A great many of the injured developed a skin reaction about the fifth day after the first dose.

SUMMARY

During twenty operating days, 132 patients were operated on, 176 interventions being made; the latter indicates that approximately 30 per cent. of the injured had more than one operative condition. There were 8 laparotomies (4.6 per cent.), 10 craniotomies (5.8 per cent.), 3 thoracotomies (1.7 per cent.), and 4 arthrotomies of the knee (2.3 per cent.). This indicates that approximately 15 per cent. of the cases were of the preceding variety.

The remaining 107 cases (approximately 85 per cent.) can be included under the general term "injuries of the soft parts," it being borne in mind that this grouping includes wounds of the smaller joints, fractures, ligation of vessels, neural injury, spinal fracture, and all the others strictly limited to "soft parts."

Regionally considered, the parts most affected were: gluteal area, 27 cases; arm area, 17 cases; forearm area, 13 cases; shoulder area, 12 cases; chest area, 9 cases; thigh area, 9 cases; calf area, 7 cases. There were nine deaths in 132 operated cases, a mortality of 6.8 per cent.

The cause of death was: intra-abdominal with visceral lesions, 4; intrathoracic with hemorrhage, 2; intracerebral with hemorrhage, 1; amputation (arm) for gas gangrene, 1; gluteal area with hemorrhage, 1.

The patients were operated on and cared for by two teams of American surgeons composed of four members, and we found for practical purposes that it was safe to count on being able to operate on twelve patients in the allotted ten hours of operative service. However, in one period of great activity, both American teams, operating simultaneously, operated on thirty patients in seventeen hours' continuous service.

Ether was the anesthetic of choice, preferably given in the Ombredain inhaler or on a mask (open method); the former is an excellent apparatus because it can readily be operated by more or less inexperienced persons. Incidentally, the side piece can be removed, a cork with two glass tubes inserted, and then it is ready for use with ethyl chlorid as the inhalant; this is a safe and very satisfactory anesthetic for operations not requiring longer than fifteen minutes, and there is no postoperative shock or vomiting. In the first few days of our experience, Major de Tarnowsky and I were the only surgeons available, and we found it necessary to use chloroform because the electricity had been cut off, and candles and lamps were used to light the operating room, making it unsafe to use ether.

CONCLUSIONS

1. No patient should be operated on until thoroughly warmed, unless bleeding is uncontrollable.
2. Patients arriving with a tourniquet, with or without severing of main vessels, are bad risks in that gas gangrene is likely to have already developed. In no instance should the wound in such cases be closed.
3. An unusual rise of temperature or pulse, especially if associated with restlessness, demands immediate investigation, as these signs often indicate the onset of gas gangrene.
4. Persisting high temperature and pulse almost invariably mean that the wound is not doing well, unless pneumonia or some other acute systemic condition can be positively demonstrated.
5. Freedom from subsequent infection is directly proportionate to the removal of damaged tissue.
6. Persisting shock usually indicates hemorrhage.
7. Ether has demonstrated an unusual efficacy when employed to lavage wounds during and after operation, especially when much muscle tissue is involved.
8. Postoperative dressings should not be dry for the first few days at least; moist dressings are of proved value in the early stages.
9. Drainage will cause infection if used for more than forty-eight hours, especially if rubber tubing is used in parts subjected to movement, notably the region of the abdomen or chest.

OPERATION FOR EMPYEMA

A PRELIMINARY REPORT COVERING AN OBSERVATION ON ONE HUNDRED AND FIFTY-FIVE CASES

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This report is based on an observation covering 155 cases of empyema resulting as a sequel of the 1,300 cases of pneumonia treated at the Camp Pike base hospital and reported in Major Arthur Small's[1] paper. From the date of the organization of the hospital, all medical officers were instructed to examine pneumonia patients carefully with the idea of determining the presence of pus in the pleural cavity. To this end soldiers suffering with this disease were as a routine roentgenographed at the end of fourteen days after the onset, if the stage of convalescence was not well established at that date. Whenever roentgenoscopy disclosed possible signs of fluid in the pleural cavity, aspiration, under strict aseptic technic, was carried out. If as a result of this aspiration macroscopic pus was present, or the fluid examined in the laboratory showed pus organisms, surgical intervention was immediately instituted.

On admission of these patients to the surgical service, blood cultures are taken, roentgenograms and examinations are systematically and repeatedly made, and fluids aspirated from the pleural cavity are investigated in the laboratory.

The bacteriologic findings which are based on an examination of the pleural fluids, since the blood cultures were practically all negative, show the *Streptococcus hemolyticus* in 101 cases and the pneumococcus in twenty-five. Type I was found in two cases,

1. Small, A. A.: Pneumonia at a Base Hospital, THE JOURNAL A. M. A., this issue, p. 700.

Type II in seven, and Type IV in six. Seven cases were not agglutinated.

In our early experience the operation of costectomy or thoracotomy was performed practically as a routine, though in a few cases aspiration was carried out and 2 per cent. formaldehyd solution in glycerin was injected into the pleural cavity. In the drainage cases, as a rule, Brewer's tubes were used. In some of these cases negative pressure was produced by means of Woulfe's bottles, while in others drainage was carried directly into large bottles containing a very weak mercuric chlorid solution. In many of these cases the pus was found in separate compartments of the pleural cavity. Of especial interest were the pus pockets formed in the following position: the lateral wall on the right side formed by the mesial surface of the lung from the diaphragm to the apex of the lung, the left wall below by the pericardial sac, above by the mediastinal space, and in front by the anterior flap of lung, which became adherent to the costal pleura in this position, thereby burying the pus deep in the thoracic cavity about the root of the lung. Cavities containing pus formed in a corresponding position in the left pleural cavity.

METHOD OF DRAINING SUBSTERNAL INTERPNEUMONIC PUS CAVITIES

In order to drain these cavities, an operation was devised in which 3½ inches of the fourth rib was resected and retraction was produced so that the gloved finger might sweep over the anterior border of the lung into this space. This anatomic location was selected because through an incision at this point pus pockets may be reached anywhere between the diaphragm and the manubrium sterni. In the last case of this type, drainage was performed by a rubber catheter introduced through a trephine opening made in the middle of the sternum between the third and fourth costal junctions. At this point the operator can enter either the right or the left pleural cavity.

Observation of this group of cases gave us a number of reasons for not opening the pleural cavity. We were led to this conclusion particularly by our experience in aspiration and the injection of solution of formaldehyd in glycerin into the pleural cavity. Because of the extent and virulence of empyema at Camp Pike, the following plan was decided on, and I here quote largely from the May report on this subject to the Surgeon-General's Office.

In the early part of March it was deemed advisable to investigate this disease very carefully and extensively, and to that end a team was formed for that work. This group at the present time is made up of the chief of the surgical service, who acts as director and is in daily consultation with members of this group, particularly in consultation in the operating room, empyema wards and laboratory, and the following members, who devote practically all their time to this subject: Lieuts. V. P. Diederich and H. D. Van Schaick of the surgical department; Lieut. H. L. Goss of the roentgenology department; Lieut. Charles G. Beall of the medical department (consultant); Lieut. S. Hoge of the laboratory department; Miss Rathjen (bacteriologic assistant), and Miss Russell, an especially trained nurse.

NEW PLAN OF OPERATIVE PROCEDURE AND RESULTS

Twenty-five patients have been operated on since April 1, with one death, and the prognosis for the recovery of those remaining is excellent. In the fatal case the patient was operated on according to the old plan of costectomy. Mention is made of this fact, as in none of the nineteen cases reported in this group in which operation has been performed by the new plan have any patients died. In addition to the treatment outlined in the March 22 report we have made one change, to which reference is made in the previous sentence as the "new plan." To this type of operation I wish to direct especial attention; namely, the draining of the pleural cavity, irrespective of the character of the pus, by means of a No. 14 French rubber catheter, introduced by means of a trocar and cannula, just large enough to thread the catheter into the pleural cavity. The catheter is then connected with a 100 c.c. glass syringe, and aspiration is intelligently and carefully carried out. If the pus is too thick for aspiration, a small amount of neutral solution of chlorinated soda (Dakin's solution) is allowed to run in. This solution quickly liquifies the pus, so that by repetition of this procedure the entire cavity is emptied. The cannula is withdrawn, leaving the catheter in place, and one-half the number of cubic centimeters of Dakin's solution are allowed to run into and remain in the pleural cavity as correspond to the quantity of pus aspirated during the operation. The process of aspirating through this catheter and the instillation of Dakin's solution is repeated by a trained ward surgeon three times a day, and two times during the night by an especially trained nurse. When by examination, either physical, by the roentgen ray or by aspiration, separate pockets of pus exist, this same procedure is followed. The last nineteen patients in this group have been treated by this method, and I am firmly convinced that this plan of procedure is a marked improvement over any type of operation that has been performed in our experience at this camp.

OUTLINE OF WORK BY EMPYEMA TEAM

A weekly routine meeting of the group is held at which the general plan of procedure is outlined so that individual effort may not be expended in a futile manner.

From the bacteriologic standpoint the following control is being attempted: A graduated pipet of pus is taken from the pleural fluid aspirated at the original operation. This pus is plated and cultivated; subsequently colonies are counted, from these figures the number of organisms is computed, and then a comparison is made with a parallel procedure repeated every twenty-four hours. Cultures are made to determine whether either aerobic or anaerobic organisms are present. These routine bacteriologic examinations constitute a definite and accurate method of control in determining the value of this form of surgical procedure in preventing the introduction of other bacteria into the pleural cavity. If mixed infection occurs, it will be immediately noted in the colonies on the plates. At this date no mixed infections have been found in the laboratory following this new type of operation. The size of the cavity is measured by determining from day to day the amount of fluid used to fill it. By this means some information is gained respetting the rapidity with which the cavity is being obliterated.

The roentgen-ray member is experimenting on shadows being formed by various solutions that might, without deleterious effect, be injected into the pleural cavity. Such a solution would give some index of

the size, shape and location of the pus cavity. It may be said, by way of explanation, that barium or bismuth cannot, at least by the ordinary methods, be used for this purpose, on account of the inability to get it out of the pleural cavity through the small opening made by the catheter. Solutions of potassium iodid, sodium iodid, weak solutions of silver salts and other substances are being investigated by roentgenologic methods. In the event of any of these solutions being considered favorable, some experimental work will be done on dogs and other animals before the solutions are used in the empyema service.

BENEFITS OF OPERATION

1. It is distinctly a minor operation.
2. It minimizes the possibility of contaminating the pleural cavity from without.
3. The lung is not as completely collapsed as in the operation of costectomy or thoracotomy.
4. Treatment can be repeated at definite intervals and an accurate account kept of the amount of pus aspirated. A comparison of the quantity and character of the pus coupled with the bacteriologic findings from day to day enables one to establish a favorable or unfavorable prognosis.
5. The distressing sinuses are not as likely to follow, though not sufficient time has elapsed to permit a definite report on this phase of the operation.
6. Pus from dependent portions of the pleural cavity can be completely evacuated by this method.
7. Solidified pus cannot form under the influence of the reaction of Dakin's solution used in the irrigation.
8. Danger of injury to the lung from the use of the aspiration needle is overcome by the rubber catheter.
9. In suspected lung abscess, communicating with the pleural cavity, its presence is determined after the introduction of 10 c.c. of the irrigating fluid, by the patient immediately having an irritating cough and noting the taste of the fluid in his mouth.

The work on empyema, under the foregoing plan, is placed on an intelligent and scientific basis. The results reported in this paper are largely dependent on the continuous attention given these patients, particularly a very rigid surgical technic in the surgical operations and subsequent surgical dressings.

REPORT OF A SEVERE CASE OF EPIDEMIC MENINGITIS TREATED BY THE COMBINED INTRAVENOUS AND INTRASPINAL ADMINISTRATION OF ANTI-MENINGOCOCCUS SERUM.

T. P. CAPLINGER, M.D., (WALLACE, IND.)
Captain, M. R. C., U. S. Army
CAMP LOGAN, HOUSTON, TEXAS

Lieutenant M. was admitted April 25, 1918, and a diagnosis of epidemic meningitis was confirmed by laboratory methods. He was given 30 c.c. of antimeningococcus serum intraspinally daily for seven consecutive days with but slight improvement. On the seventh day he was given 30 c.c. of undiluted serum intravenously, and the same amount on the following day combined with the same sized dose intraspinally.

The patient showed marked improvement, but developed a severe anaphylaxis. No more serum was given for two days, nothing being done during this time except the withdrawal of from 60 to 80 c.c. of spinal fluid to relieve pressure.

On the eleventh day the patient was seized with a hard chill followed by a rise in temperature to 103 and all the former symptoms. The spinal fluid again became cloudy. He was given 15 c.c. of serum intraspinally, and one hour later 60 c.c. were given intravenously diluted with an equal amount of sterile sodium chlorid solution. This was repeated on the twelfth day. The fluid cleared and has remained so since. There was a marked and severe reaction from the last two doses; there were three or four convulsive seizures and involuntary voiding of urine and feces, followed by a severe arthritis and erythema. This lasted for four days. The temperature reached 104 and the pulse 160. The patient was given digitalis internally, and an ice bag was applied to the precordia with good results. He is now well on the road to recovery, with a partial paralysis of the right external rectus muscle which is improving under potassium iodid, 0.65 gm., three times a day after eating. He has a soft systolic murmur with reduplication of the second pulmonic sound over the pulmonary area, which we think is purely functional.

The patient was given a total of 540 c.c. of serum and received eighteen spinal punctures.

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION. W. A. PUCKNER, SECRETARY.

CHLORAMINE-T.—Sodium Paratoluenesulphochloramide. —$CH_3C_6H_4SO_2NaNCl+3H_2O$, 1:4.

Actions, Uses, Dosage, Physical and Chemical Properties. —See New and Nonofficial Remedies, 1918, p. 156.

Chloramine-T, Squibb.—A brand of chloramine-T.

Manufactured by E. R. Squibb and Sons, New York. No U. S. patent or trademark.

Chloramine-T Surgical Paste-Squibb.—It contains chloramine-T 1 Gm. in 100 Gm. of a base composed approximately of sodium stearate 15 per cent. and water 85 per cent.

Chloramine-T Tablets-Squibb, 4.6 grains.—Each tablet contains chloramine-T 4.6 grains.

DICHLORAMINE-T. — Paratoluenesulphonedichloramide. $CH_3C_6H_4SO_2NCl_2$.—The dichloramide of paratoluenesulphonic acid, $CH_3C_6H_4SO_2OH$.

Actions, Uses, Dosage, Physical and Chemical Properties. —See New and Nonofficial Remedies, 1918, p. 157.

Dichloramine-T, Squibb.—A brand of dichloramine-T.

Manufactured by E. R. Squibb and Sons, New York. No U. S. patent or trademark.

Patriotic Work.—The Children's Bureau, U. S. Department of Labor, states that the drive for better play and more inspiring out of school activities for children is on. Plans are rapidly developing in the states to make this recreation drive count for increasing the health and vigor of the boys and girls of the United States. One purpose of the drive is to make more plain that the vigor of young people can be gaged by their ability to perform certain game tests and that their health can be increased by wholesome play. Although play is instinctive with children many of them have never learned to play with other children, and need to be taught to take their part in group games. Such games teach the spirit of cooperation and team work, and develop the ability to make quick decisions demanded by the needs of the game. Boys and girls are beginning now to fit themselves for the tests by playing the games which develop special muscular agility. A leaflet telling how to play twelve good games, and showing just how they will help to make the children stronger can be secured on request from the Playground and Recreation Association of America, 1 Madison Avenue, New York, which is cooperating with the Children's Bureau and the Woman's Committee in the plans for the recreation drive of children's year.

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SATURDAY, AUGUST 31, 1918

UNIFORMITY IN MORTALITY STATISTICS

It is hardly necessary to point out the great advantages to the public health involved in a correct and uniform system of reporting deaths, and yet one can hardly turn to a table of official mortality statistics without being perplexed by the need of reinterpretation of the data presented. A number of current controversies, such as that on the alleged increase of cancer, hinge very largely on the correct evaluation of reported causes of death. Some of the sources of error are at present unavoidable. As is well known, there are some certified causes of death, such as "influenza" and "rickets," in which the margin of error is so great that they are considered unacceptable as statements of the cause of death unless confirmed by necropsy.[1] It is well known also that the diagnosis of some pathologic conditions is difficult at the best, that under some conditions, as in gastro-intestinal maladies in the tropics, the uncertainty is greater than under others, and that improvements in diagnostic methods are steadily making the reported causes of today less comparable with the reported causes of a few decades ago.

If a large measure of the uncertainty in mortality data is unavoidable, it is nevertheless true that death records can be simplified and made much more useful by uniformity in nomenclature and in methods of reporting. The framing of the International List of Causes of Death was a step in this direction; but, as pointed out by the committee already referred to, such a list "necessarily contains many terms that are unscientific, inaccurate and indefinite, as well as some that are obsolete." As experience in registration offices has shown, it is necessary to eliminate some of the terms from such a list and to use great caution in accepting others without necropsy or without supporting data, such as the finding of a specific microbe.

For some diseases it is possible to secure valuable data by simple uniformity in reporting. In death following measles, for instance, the report to the health officer might fail to distinguish between the primary and the secondary cause of death. Some physicians might report the death as due to measles, others as due to bronchopneumonia. Unless the occurrence of measles is specifically mentioned in the report, the connection of a death from bronchopneumonia with a case of measles would not be known at the health office. Comparison of the death rates from measles in communities where different modes of reporting were customary might hence be very misleading, and so might the apparent degree of fatality from measles at different periods in the same community. Nearly one fourth of the deaths reported from "pneumonia" in the registration area of the United States are not differentiated as between the lobar or broncho type, and the tables do not indicate whether pneumonia was the primary cause of death or occurred in the course of or following some other disease. The difficulty here would seem largely due to methods of recording. Since correct data on the occurrence of disease and the cause of death must constitute the basis for much of our public health work, more emphasis should be laid on uniformity in death reports both by health authorities and by the teachers in medical schools. The organization of the medical work in the Army encampments with reference to pneumonia and measles will doubtless do much to bring home to physicians the importance of uniformity in records in these and other diseases. Otherwise no proper comparisons of conditions and results are possible.

1. The Accuracy of Certified Causes of Death, Report of a Committee of the Vital Statistics Section of the American Public Health Association, Pub. Health Rep., 1916, **31**, 2539.

THE SCIENCE OF NUTRITION AND THE ARMY

The necessity for the scientific handling of our food supply no longer needs any argument in its favor. The day of haphazard methods and laissez faire policies has passed. A writer recently remarked that the personnel of the Food Administration is only another of the many proofs which we are having that there is no talent so superior that it does not gladly turn all that it has to the use of the country. We have lived to witness a supposedly intractable land of liberty respond to restrictive food regulations with a spirit of readiness that must have been fortified by a confidence in their safety and wisdom. The gospel of using our food wisely in economy has become firmly established among the people. Nevertheless the organization of a division of food and nutrition in the Medical Department of the Army has been watched with uncertainty as to its success by more than one champion of universal conservation. Has not the rationing of the Army been the uninvaded province of the quartermaster for generations? Who, then, shall presume to interfere with the orderly conduct of this supply department?

Yet the unexpected has happened, as has been the case so often in this war. Since last fall a group of food specialists — physiologists, food analysts and

other nutrition experts recruited from the staffs of our educational and research institutions under the leadership of Major Murlin — have been making surveys of food conditions in the camps. These officers have studied the food served, how it is inspected, stored and prepared, and have made many recommendations which have been adopted with advantage. The presence of experienced students of nutrition has left an impress in the form of improved knowledge of dietaries and dietetic methods. Better still, however, has been the effect of this intelligent cooperation with mess officials on the reduction of waste, a feature which early aroused the criticism of the civilian conservationist, who looked with disgust and ire on the apparent lack of mess economy in some of the camps. According to a recent statement authorized by the War Department,[1] in a typical "surveyed" organization the edible waste per man per day was reduced from 1.12 pounds before the instruction to an average of 0.43 pound thereafter.

On the basis of the average saving of 0.69 pound per man per day, the economy would amount to $338,000 a year for a camp of approximately 15,000 men. The advantage of work of this character involving scientific advice about dietaries, inspections for adulteration, spoiling and deterioration, and cooperation with mess officers has become so apparent that sixty new officers similar to the specialists now in service are commissioned. Such are the conquests of scientific administration.

1. Nutrition Officers Stationed in the Camps, Science, Aug. 16, 1918, p. 159.

THEORIES REGARDING MEAT POISONING

The discovery by Gaertner in 1888 of a micro-organism, *Bacillus enteritidis,* in association with an outbreak of meat poisoning, gave a great impetus to the study of bacterial food poisoning. Since then many added instances of the finding of the same or closely related bacteria have pointed to the harm that may arise from most unsuspected sources in relation to edible products. In an earlier period it was widely assumed that in the decomposition of meats and other food products highly poisonous "ptomains" are formed, and that these were responsible for the observed cases of acute intoxication ascribed to food. Speaking several decades later, Jordan has summarized the trend of present opinion by stating that it is possible that cases of "ptomain poisoning" due to ingestion of ptomains or to their formation within the intestine sometimes occur in man, but that there is no doubt that such cases, if they occur at all, are very rare. Many of the epidemics of "meat poisoning" are now known to be due to infection with specific micro-organisms, rather than to the action of a formed poison. The alleged complicity of the ptomains remains to be proved.

Two kinds of bacilli are at present primarily associated with the production of meat poisoning: organisms of the type of Gaertner's bacillus and the anaerobic *Bacillus botulinus,* discovered in 1896 by Van Ermengem. The latter and its relation to those outbreaks of poisoning which have been described under the name of botulism have previously received detailed comment in THE JOURNAL.[1] In the case of true meat poisoning, the illness is unquestionably due in many instances to that group of micro-organisms now classified as paratyphoid bacilli, which includes the *B. enteritidis.* Paratyphoid fever may therefore be due to food poisoning in the bacteriologic sense.

The county medical officer of health for Somerset, England,[2] has recently pointed out that in spite of our greatly extended knowledge regarding food poisoning outbreaks, there is surprisingly little information as to the precise sources of infection. It has been alleged, for example, that the bacilli are of human origin, the food being infected with pathogenic Gaertner bacilli from a human source, such as a paratyphoid fever patient or a carrier of its infective organism. Again, since organisms culturally resembling paratyphoid bacilli are widely distributed in nature, it has been believed that many outbreaks of food poisoning are due to direct contamination with these sources, and particularly with fecal infection.

A third hypothesis is urged by Savage[2] as best explaining the available facts. He suggests that this type of food poisoning outbreaks is due to an infection of the food with virulent organisms of the Gaertner group, derived either from animals that are at the time suffering from disease due to such micro-organisms or from animals acting as carriers of these bacilli. Heretofore no direct connection of human paratyphoid fever with specific diseases of the lower animals has been certainly established. The probability of such a relationship hinges in part on the question as to whether or not the organisms of the meat-poisoning type actually occur frequently in the healthy human intestine and likewise in the alimentary tract of animals. Savage claims to have proved by extended direct examination that the Gaertner group bacilli are not natural intestinal inhabitants either of man or of animals used for human food or which come into contact with food. The instances, he argues, in which these bacteria have been found in such situations are rare, and they may be bacilli from some previous infection.

If these assumptions are established, it will be important to direct attention in greater measure to unrecognized disease in animals. At any rate, Savage[3]

1. Food Poisoning, with Special Reference to Botulism, THE JOURNAL A. M. A., Aug. 11, 1917, p. 472; Home Canned Foods and Botulism, Oct. 13, 1917, p. 1262.

2. Savage, W. G.: The Sources of Infection in Food Poisoning Outbreaks, Jour. Hyg., 1918, **17**, 20.

3. Savage, W. G.: Further Investigations of the Distribution of Gaertner Group Bacilli in Domestic and Other Animals, Jour. Hyg., 1918, **17**, 34.

has not succeeded in showing the presence of any organisms belonging to the Gaertner group in the organs of calves and pigs passed as healthy and fit for human consumption. Perhaps when more is learned about the pathogenic organisms in relation to animal diseases—of which swine fever, calf septicemia, pyemia and enteritis in cattle, infectious abortion, etc., may be cited as illustrations—a nearer approach to the true explanation of the etiology of meat poisoning will arise.

THE ELIMINATION OF ZINC AND TIN

It is only in comparatively recent times that the possible part the intestine may play as a path of excretion has come to be clearly recognized and taken into account. The appreciation of the now undoubted fact of the excretory function of the bowel for certain substances has been due in largest measure, probably, to the studies on the behavior of iron. Thus it has been demonstrated that this element may actually be absorbed and used in the body, yet finally excreted with the feces. Indeed, little iron is ordinarily found in the urine, even when considerable quantities are introduced into the organism.

This story of the elimination of iron has already been duplicated for many of the heavy metals. The gastro-intestinal tract has been shown to be the main channel of excretion for lead, silver, nickel, mercury and bismuth, for example, the kidneys playing a very subordinate part. The latest studies of Salant[1] and his co-workers at the Bureau of Chemistry in Washington bring similar evidence of the fate of zinc in the body, the distribution of this metal in the tissues and its channels of excretion being similar to that of the heavy metals just enumerated. These are usually deposited in the liver in appreciable amounts.

According to the government investigators, the behavior of tin is somewhat different. Although the elimination occurs chiefly through the bowel, not inconsiderable portions of the quantity introduced into the body may find its way out through the kidneys. Information of this character has more than a passing interest so long as any of the nonphysiologic, that is, foreign heavy metals, however small their amount may be, find a way into the human body in everyday life. It is not merely in the industries that this may occur. A recent report on food products[2] shows that canned beans, for example, may contain more than 600 mg. of tin per kilogram. We cite this as an illustration of the unsuspected presence of the element rather than as an indictment against canned goods. Street[2] is responsible for the statement that the source of the tin is the tin container, the amount contained in the food depending in part on the age of the food and the storage temperature. In the case of beans, and similar slightly acid foods, he continues, the tin present in the canned product has been shown to be due in part in some cases to the amino bodies present. It has been erroneously assumed that the tin in canned foods was in solution. Bigelow,[3] however, has shown that the tin is largely, sometimes chiefly, in some insoluble form. Moreover, we are not justified in assuming that all of the tin found in the liquor even is in a soluble form, for it is quite probable that much of this is present as finely divided "insoluble oxid, hydrated oxid, or basic salt of tin." Furthermore, it is possible that much of the tin seemingly in solution is in colloidal form.

1. Salant, W.; Rieger, J. B., and Treuthardt, E. L. P.: The Distribution and Elimination of Zinc and Tin in the Body, Jour. Biol. Chem., 1918, **34**, 463.

2. Street, J. P.: Twenty-Second Report on Food Products and Tenth Report on Drug Products, 1917, Bull. 200, Connecticut Agric. Exper. Station, 1917.

Current Comment

THE NEW SELECTIVE SERVICE LAW AND PHYSICIANS

Few of the questions now being asked by physicians as to how the new draft law will affect them can be answered until the regulations are issued by the Provost Marshal-General. There are some 75,000 physicians in the United States under 45 years of age. Those holding commissions in the Medical Department of the Army, Navy and Public Health Service are not required to register. Members of Local and Appeal boards, although required to register, as stated elsewhere, are considered as drafted for this duty, and therefore are exempt from general military service. There should be no difficulty now in securing a sufficient number of physicians for the medical needs of the Army and Navy. While a sufficient number undoubtedly could have been secured by the voluntary system, under the new order of things there certainly will be an ample supply. The important fact is that now it will be possible to solve the problem as to securing the number of physicians required for military service without seriously inconveniencing the civilian population. The new law provides for the exemption by the Selective Service Boards of those engaged in necessary "occupations and employments." Special regulations governing the application of the law to physicians will be necessary: the demands on the supply are so many and so complex. Two weeks ago THE JOURNAL stated, "It would seem possible to formulate regulations which would receive the approval of the Surgeon-General of the Army and of the Provost Marshal-General, which would practically place all physicians of draft age under the jurisdiction of the Surgeon-General of the Army." The only satisfactory solution of the whole problem is through the cooperation of the Surgeon-General of the Army and the Provost Marshal-General. The obvious necessity of this makes it practically certain that such cooperation will be effected. Specific regulations must be

3. Bigelow, W. D.: Bull. 2, Research Laboratories, National Canners' Assn., August, 1914.

formulated to guide the Selective Service Boards, the ultimate object being to place the disposal of drafted medical men in the hands of the Surgeon-General. The ideal way would be to draft all physicians under 45 years of age, to commission them in the Medical Corps of the Army, and to place them at the disposal of the Surgeon-General of the Army, who would place on the inactive list those required in civil life. The demands on the medical profession are: (1) military and naval—including medical examiners for Selective Service Boards; (2) institutional—including medical colleges, hospitals, state asylums, etc.; (3) industrial—including sanitation and the care of employees in munition and other large manufacturing plants; (4) public health—including national, state, county and municipal health officials; and (5) civilian practice. The Surgeon-General's Office already possesses data covering most of these needs, and has available a complete survey of the medical conditions in civilian communities.

THE CALCIUM REQUIREMENT OF MAN

Among all the inorganic elements that occur in the body, calcium is the most abundant. The store of it, particularly in the skeletal structures, is so large that considerable drains on this reserve — if we may think of the bones in this sense — may be made without obvious signs of damage. Nevertheless, as the recent studies of Osborne and Mendel[1] have emphasized anew, the supply of calcium cannot long be neglected with impunity in the case of individuals that have a special need for it, as is true in growth, during gestation and milk production. This is almost a truism; yet how little is known by the average practitioner regarding the quantity of lime that his patient needs? And how much does he know about the actual supply being furnished in the diet or how it can be supplemented? Energy and protein are not the sole desiderata for adequate nutrition, even though a shortcoming in respect to either makes itself felt very soon. Professor Sherman of the department of Food Chemistry of Columbia University, New York, to whom, in conjunction with various co-workers, we owe much of the information about the human adult need of calcium, has lately supplemented his earlier studies in this field.[2] These observations have an enhanced value because they represent the outcome of very carefully conducted balance experiments in which income and output were measured over the unusually long period of a month in some instances. Without giving the experimental details, we may summarize the findings by the general statement that an average of 0.45 gm. (about 7 grains) of calcium per adult man per day represents approximately the minimum maintenance requirement for normal human nutrition. Expressed in more familiar terms, a pint of milk or less will supply this quantity of calcium; but it will require pounds of meat or common milled cereals to furnish it. And it is well for him who is accustomed to prescribe lime to remember that a pint of milk usually contains more of the element than does the same volume of saturated lime water. Incidentally, some of Sherman's recent experiments, carried out on women, negative the idea of a distinct monthly cycle in the metabolism of either nitrogen, phosphorus or calcium (except for the previously known tendency to retain nitrogen for a day or so at the beginning of the menstrual period). The output of any of these three elements in the menstrual flow was not large enough to affect materially the estimate of the daily requirement for normal metabolism as averaged for the entire month. From this standpoint, to quote Sherman, Gillett and Pope,[2] the menstrual flow is essentially a blood loss, and as such is important to the balance of intake and output of iron, but of minor consequence in the nitrogen, phosphorus or calcium metabolism.

1. Osborne, T. B., and Mendel, L. B.: The Inorganic Elements in Nutrition, Jour. Biol. Chem., 1918, **34**, 131. Inorganic Elements in Nutrition, editorial, THE JOURNAL A. M. A., Aug. 24, 1918, p. 660.

2. Sherman, H. C.; Gillett, L. H., and Pope, H. M.: Monthly Metabolism of Nitrogen, Phosphorus and Calcium in Healthy Women, Jour. Biol. Chem., 1918, **34**, 373. Sherman, H. C.; Wheeler, Lucile, and Yates, Anna B.: Experiments on the Nutritive Value of Maize Protein and on the Phosphorus and Calcium Requirements of Healthy Women, Jour. Biol. Chem., 1918, **34**, 383.

A MEDICAL DIVISION IN THE PROVOST MARSHAL-GENERAL'S OFFICE

One of the important functions connected with the application of the selective service law in raising our Army is the physical examination of registrants. This work may be regarded as fundamental. If it is not satisfactorily done, some men who are physically fit will be rejected for physical causes and others who are not physically fit will be accepted. In the first case the nation loses in its fighting man power; in the second, the nation suffers a great financial loss in connection with inducting registrants who are returned to their homes, and later on through the payment of compensation for disability. The recent establishment of a medical division in the Provost Marshal-General's Office is a commendable recognition of the importance of these physical examinations. The first step in this accomplishment was the appointment last February of Doctor, now Colonel, Frank Billings, who was assigned as medical aide to the Provost Marshal-General. But since that time the medical phases have developed to such an extent that the enlargement of this position into a specific division in the Provost Marshal-General's Office inevitably followed. The personnel of the medical division consists of Col. F. R. Keefer, of the regular medical corps, chief, assisted by Major Hubert Work and Capt. D. Chester Brown. This personnel will be enlarged as required. The new selective service law will involve the registration and physical examination of some 14,000,000 men. This will have to be accomplished in a much shorter time than was allowed to the same duties connected with the less than 10,000,000 men covered by the first selective service law. It is possible that the present machinery, so far as physical examinations are concerned, is not ideal. There is no doubt that some of the criticisms of the method of conducting physical examinations of registrants in the past have been to a certain extent justified. But there is no time to create new machinery, even though such might be neces-

sary to secure ideal conditions. The medical division in the Provost Marshal-General's Office is already correcting faults here and there. We may look forward to the physical examinations of the new increment to the Army with optimism and with the hope and belief that there will be less cause for criticism in the future than, perhaps, there was in the past.

THE BLOOD SUGAR IN DIABETES

Although sugar is continually present in the blood, no significant amount escapes through the kidneys into the urine during health. In diabetes, however, or the condition which S. R. Benedict has recently designated as glycuresis in contrast to glycosuria, glucose may be found in abundance in the urine. It is not clear that this is always the outcome of hyperglycemia, for frequently there are cases of the latter without accompanying abnormal glycosuria. These facts have long furnished a puzzle to the student of the chemistry of the subject. Among the hypotheses framed to explain the failure of the sugar in normal blood to escape into the urine has been the assumption that the blood sugar is normally in some rather unstable combination, perhaps with a colloid substance like protein, which cannot pass through the renal membrane. According to this the normal colloid-sugar of the blood would differ from the "free" sugar arising under pathologic conditions and readily penetrating the glomerulus of the kidney. This "combined" sugar hypothesis has usually been denied because of the demonstrations that the glucose present in the serum is readily dialyzable, indicating that it must be free. In criticizing this attitude, Kleiner[1] of the Rockefeller Institute has pointed out that evidence has always been obtained with the blood of normal animals exclusively. He further asserts that the property of being secreted by the kidney is not necessarily a criterion of diffusibility. Various colloidal substances when administered parenterally are quickly thrown out by the kidney; the higher polysaccharids[2] are good examples. Accordingly, Kleiner has compared the diffusibility of sugar in the blood from diabetic and normal animals, respectively, the fluid in the latter case being brought to the same initial sugar content by the addition of glucose. The diabetic blood sugar dialyzed at an irregular rate, with a delayed or completely interrupted dialysis during one or more periods. The control dialysis of normal blood with added free sugar was not interrupted in this manner. The divergent results are interpreted as possible evidence for the existence of "combined" sugar in diabetic blood. This affords no easier clue to the solution of the problem originally propounded; yet it has not prevented its author from adding the further hypothesis that a considerable part of diabetic blood sugar, being in a combined and less easily diffusible condition, is not stored or used by the cells because it cannot pass from the blood through the walls of the capillaries and into the tissues. Thus "combined" blood sugar becomes the competitor of "decreased permeability" of vessels in the conflict of hypotheses where the known facts still fail. And the problem remains.

1. Kleiner, I. S.: The Rate of Dialysis of the Blood Sugar in Experimental Diabetes, Jour. Biol. Chem., 1918, **34**, 471.
2. Mendel, L. B., and Mitchell, P. H.: Am. Jour. Physiol., 1905, **14**, 239.

MEDICAL MEMBERS OF LOCAL AND DISTRICT APPEAL BOARDS

A number of the medical members of local and district appeal boards have resigned to accept commissions in the Medical Corps of the Army; more than a hundred were commissioned during the month of July. While their action in the great majority of cases has been prompted by purely patriotic reasons, some undoubtedly have acted in the belief that they would be subject to draft under the new Selective Service Law, and preferred to secure commissions before being called. These resignations have already seriously crippled many of the boards. It is for this reason that the Provost Marshal-General has taken action to prevent as far as possible such resignations in the future. It must be remembered that the Selective Service Law, in creating these boards, is specific in defining the functions of the members and the punishment for neglect of duty. The regulations state that members of these boards are as effectively "drafted for this duty as are registrants who are selected for military service." The only way in which a member of a local or district appeal board may resign is by application for relief directly to the governor of the state. The governors have now been asked not to accept such resignations, and draft boards have been cautioned not to release necessary medical members without the sanction of the Provost Marshal-General. The needs of the Provost Marshal-General's Office are regarded as paramount, and the Surgeon-General is requesting local examiners for the Medical Reserve Corps, in forwarding papers of applicants, to indicate whether or not the applicant is a member of a Selective Service board. Undoubtedly, if there is a competent examiner available to take the place of the one who desires to resign, the resignation will be accepted. These comments apply to medical members of local and district appeal boards only; not to members of medical advisory boards.

The Hospitals of Chile.—The public hospitals in France and in most of the South American countries are under one central organization in the cities, called the *Assistance publique* or the *Asistencia Publica*. All the care of the sick and poor is grouped under this heading. In Argentina a movement is under way to group the hospitals throughout the country in one national *Asistencia Publica*. In Chile, a supreme council for the country was organized last year, but the separate cities still have each their own individual *Asistencia* or *Beneficencia* system. The disadvantages of this are seen, for example, in the recent news that the authorities at the town of Freirina have had to close the hospital at that place and send the patients home, as no funds were available to keep it open. The *Asistencia Publica* of Santiago, Chile publishes a handsome quarterly, the *Revista de Beneficencia Publica*. The editorial staff includes the administrator and subadministrator of the *Asistencia Publica*, A. del Rio and G. Greve, and they seek to record the work being done in the hospitals of the city, to publish stimulating articles in all branches of hospital work, inculcating high ideals and relating what is being accomplished in other countries. The *Revista* gives the list with full details of all the donations and legacies that are being made to hospital and sanatorium work throughout Chile, quite an extensive list.

Medical Mobilization and the War

Personnel of the Medical Department

For the week ending Aug. 23, 1918, the personnel of the Medical Department of the Army included:

MEDICAL CORPS: 933, including 1 major-general, 64 colonels, 112 lieutenant-colonels, 296 majors and 460 lieutenants.

MEDICAL RESERVE CORPS: 23,531, including 1 colonel, 8 lieutenant-colonels, 1,565 majors, 7,146 captains and 14,811 lieutenants. On active duty: 22,232, including 1 lieutenant-colonel, 1,487 majors, 6,840 captains and 13,904 lieutenants.

MEDICAL CORPS, NATIONAL GUARD: 1,194, including 22 lieutenant-colonels, 262 majors, 257 captains and 653 lieutenants.

MEDICAL CORPS, NATIONAL ARMY: 369, including 6 brigadier-generals, 92 colonels, 251 lieutenant-colonels, 9 majors and 1 captain.

THE DISCHARGES to date are:

Cause	Number M.C.N.A.	M.R.C.	M.C.N.G.
Physical disability	0	766	56
Inaptitude	0	289	22
Other branches of service	3	645	76
Resignations	0	205	34
Domestic troubles	0	62	1
Needed by community	1	49	0
Deaths	1	103	7
Dismissals	0	17	4
Duty completed	0	3	0
No reason given	0	15	1
	5	2,154	201

NECESSITY FOR CAREFUL EXAMINATION OF REGISTRANTS

On August 6, Provost Marshal-General Crowder addressed the following message to governors of all states:

1. Rejections of registrants at camps have recently reached inexcusably high figures. It is evident that many Local Boards have forwarded unfit men whose defects were readily recognizable.

2. Order each Local Board to review, with aid of Advisory Board, Forms 1010 of all registrants grouped as qualified for general military service and now awaiting call.

3. Order reexamination of all cases found by such review to be doubtful and bring to the attention of Local Boards, their duty to reject all unfit registrants.

4. Impress on boards their responsibility for exclusion of the unfit. Assure them of your assistance, and utilize the full time of your Medical Aide for the purpose.

MEDICAL PREPARATION FOR THE IMPENDING DRAFT

The following circular letter, dated August 22, was addressed to the Medical Aides to the Governors by Col. F. R. Keefer, chief of the Medical Division of the Provost Marshal-General's Office:

1. It is anticipated that, pursuant to legislation now pending, a very large registration will be made in September.

2. As the entire work incident to this new draft must necessarily be compressed within a very few weeks, the machinery of the draft must be repaired, oiled, and otherwise put in perfect condition to function at high speed and with efficiency.

3. It must not be said afterward that the medical parts of the machine were weaker than the rest, nor that their slow or imperfect action resulted in delay.

4. To the end that the greatest efficiency may be had, therefore, and the greatest credit accrue to those concerned with the medical operations of the draft, Medical Aides are instructed immediately to establish closer relations with all medical examiners; to urge on them the enormous importance of the matter; to make them realize that the coming test will be the greatest in the history of the draft; and to impress on them the fact that the efficiency of our overseas armies depends vitally on the way in which the test is met by THEM.

5. A careful but rapid survey must be made of all medical examiners of Local Boards. Weak examiners must be replaced; slow ones must be speeded up. Assistance must be arranged for where needed. All must be made to realize the emergency.

6. Medical Advisory Boards must be instructed that examinations must be promptly made, and the papers returned at once. All examiners must be made aware that defects which are obvious even to a layman, reflect discredit on the board as well as on the system.

7. Analysis of causes of rejection at mobilization camps will indicate weaknesses of individual boards, and suggest the proper remedy.

8. Where not already carried out, Medical Aides will arrange for meetings of medical examiners from a number of boards. These should be addressed by the Medical Aides, or by some competent examiner designated by the Aide. By selecting such men with care, they may be established as consultants, to whom examiners may refer for advice.

9. A force of inspectors has recently been organized in connection with the draft. The Provost Marshal-General contemplates that these inspectors shall, as a part of their duties, make inquiries concerning the knowledge of Medical Aides as to the efficiency and preparedness of their medical examiners throughout the state.

10. The medical profession, in its intimate relation to the draft, has met and discharged its obligations for the most part in an admirable manner. It must not fail now.

COMMISSIONS ACCEPTED, MEDICAL CORPS, U. S. ARMY

Previous lists published in THE JOURNAL, June 1, 22 and 29, July 13, 20 and 27, August 3, 10, 17 and 24.

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Montgomery—Wilkerson, F. W.

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Dermott—Baker, E.
DeQueen—Kitchens, C. E.
Little Rock—Horner, E. J.
Walcott—Majors, W. M.

CALIFORNIA

Long Beach—Hill, W. B.
Los Angeles—Colloran, J. E.
Dale, H. M.
Force, J. N.
Loomis, M. L.
Rogers, A. R.
Seager, H. W.
Modesto—Bissell, N. C.
Pasadena—Acker, E.
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Stockton—McLeish, A. H.

COLORADO

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CONNECTICUT

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DELAWARE

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McCord, J. R.
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Daisy—Elarbee, G. W.
Danielsville—Payne, D.
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Schuck, P.

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Hugo—Askew, E. R.
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Harris, A. W.
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Walker, O. J.
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McNeill, C. A.
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Thomas, H. E.
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Dukedom—Jones, D. L.
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Lipan—Axtell, E. C.
Seguin—Neighbors, A. H.
Strawn—Cromeans, R. E.
Trenton—Stevens, J. W.

UTAH

Salt Lake City—Wheeler, T. H.

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Ward—Flannagan, L. E.

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WYOMING

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COMMISSIONS ACCEPTED, U. S. NAVAL RESERVE FORCE

Previous lists published in THE JOURNAL, June 29, July 13, 20 and 27, August 3 and 10.

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Bowers, C. H.
Fearon, W. M.
Feldman, A.
Saphro, V. O.
Woodland—Blevins, W. J.
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Higgins, A. F.

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Valdosta—Thomas, J. A.

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Sowers, A. B.
Visher, J. W.
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Pontiac—Young, J. G.
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Rock Island—Frey, H.

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MARYLAND

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Mulhern, J. P.
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Whitaker, H. E.
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Somerville—Newton, E. R.

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Lore, J. M.
Wilens, I.
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OREGON

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PENNSYLVANIA

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Magonn, J. A. H.
Pancoast, H. K.
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SOUTH CAROLINA

Charleston—Rhame, J. S.
Sumter—Lemmon, C. J.

TEXAS

El Paso—Thomas, G. N.
Houston—Spurlock, G. H.
Turner, B. W.

VIRGINIA

Norfolk—Hart, J. A.

WASHINGTON

Seattle—Abraham, E. D.

WEST VIRGINIA

Eccles—Grigg, A. H.
Wheeling—Caldwell, J. H.

WISCONSIN

Frederic—Arveson, R. G.
Menomonie—Nedry, G. C.
Milwaukee—Oberembt, B. H.

ORDERS TO OFFICERS OF THE MEDICAL CORPS, U. S. ARMY

Alabama

To Ann Arbor, Mich., for intensive training, from Camp Gordon, Lieut. M. L. MOORER, Mount Vernon.

To Arcadia, Fla., Dorr Field, Lieut. J. G. BEDSOLE, Jackson.

To Camp Hancock, Ga., Capt. T. J. BROTHERS, Armiston.

To Camp Jackson, S. C., base hospital, Major J. E. DEDMAN, Birmingham.

To Camp Sheridan, Ala., Lieut. O. E. WILSON, Birmingham.

To Camp Zachary Taylor, Ky., Lieut. L. H. FORD, Phill Campbell.

To Fort Oglethorpe for instruction, Capts. N. F. COCKE, Birmingham; G. J. WINTHROP, Mobile; Lieut. T. E. PHILLIPS, Cuba.

To Hoboken, N. J., from Fort McHenry, Lieut. H. C. EDMUNDSON, Birmingham.

To Newport News, Va., Lieut. J. A. ELLIOTT, Moundville.

To Washington, D. C., Surgeon-General's Office, Capt. W. A. SELLERS, Montgomery.

Honorably discharged on account of physical disability incurred in line of duty, Major S. A. BILLING, Birmingham.

Alaska

To Army Medical School for instruction, from Fort William H. Seward, Capt. H. M. CRAIG, Hawes.

Arizona

To Hot Springs, N. C., from duty as a private, Lieut. W. N. McDUFFIE, San Carlas.

Arkansas

To Camp Pike, Ark., Lieut. E. J. HORNER, Little Rock.

To Camp Zachary Taylor, Ky., Lieut. R. L. HOPKINS, DeQueen.

To Fort Oglethorpe for instruction, Lieut. J. A. KING, Mellwood.

To Hampton, Va., Lieut. W. H. DeCLARK, McGehee.

California

To Camp Beauregard, La., from Camp Zachary Taylor, Major P. G. WHITE, Los Angeles. Base hospital, from Camp Travis, Major H. ABRAHM, San Francisco.

To Camp Cody, N. M., Capts. S. B. VAN DALSEM, San Jose; J. H. O'CONNOR, St. Helena; Lieut. W. W. MULVEHILL, Los Angeles. Base hospital, Capt. P. INGBRETSON, San Diego.

To Camp Fremont, Calif., base hospital, Capts. R. L. BYRON, M. H. ROSS, Los Angeles; G. H. BOSKOWITZ, San Francisco; E. N. REED, Santa Monica; Lieut. W. C. CHILSON, Tulare; from Camp Kearney, Lieuts. P. E. DOLAN, Los Angeles; O. D. CHAMLEY, San Gabriel.

To Camp Gordon, Ga., from Western Department, Major J. M. WHEATE, Fort Miley.

To Camp Kearney, Calif., base hospital, Capts. T. C. McCLEAVE, Berkeley; A. S. GRANGER, J. Y. OLDHAM, Los Angeles; A. M. SMITH, San Leandre; Lieut. J. M. LACEY, Los Angeles. With the board examining the troops for tuberculosis, from Camp Lewis, Capt. E. VON ADELUNG, Oakland.

To Camp Meade, Md., from Fort McHenry, Lieut. J. SAYLIN, El Monte.

To Fort Oglethorpe for instruction, Capt. H. W. EDGERTON, Pomona.

To Fort Riley, Capt. V. J. McCOMBS, Los Angeles; from Mayo Clinic, Lieut. F. THOMAS, Los Angeles. For instruction, Lieuts. C. D. COLLINS, Fresno; C. L. SWIFT, Loma Linda; A. FRIEDMAN, San Francisco.

To New Haven, Conn., from Camp Dodge, Major R. L. BYRNES, Los Angeles.

To report to the commanding general, Western Department, Capts. F. E. TULLEY, Los Angeles; C. O. HANSON, Pasadena; E. E. STONE, San Francisco; from Camp Fremont, Major C. CROSS, San Francisco.

To San Francisco, Calif., from Camp Fremont, Lieut. I. H. BETTS, Visalia. Letterman General Hospital, Capt. E. L. COTTRELL, Scotia; Lieut. R. D. WILSON, San Jose.

To his home, from Washington, Major E. L. SWIFT, Fort McDowell.

Honorably discharged on account of physical disability existing prior to entrance into the service, Capts. A. GIBSON, Alturos; C. E. IDE, Los Angeles; Lieut. A. H. VANCE, Sausalito.

The following orders have been revoked: *To Camp Grant, Ill.*, from Fort Riley, Capt. W. V. CHALMERS-FRANCIS, Los Angeles. *To Camp Kearney, Calif.*, from Fort Riley, Lieut. C. D. FANTON, Riverside. *To Camp MacArthur, Texas*, from Western Department, Lieut. G. M. DUNNE, San Francisco.

Canal Zone

To New Haven, Conn., Yale Army Laboratory School, for instruction, Lieut. D. J. MURPHY, Corozel.

To report to the commanding general, Panama Canal Department, Lieut. M. A. V. SMITH, Ancon.

Colorado

To Baltimore, Md., Johns Hopkins Hospital, for instruction, from Fort Oglethorpe, Lieut. L. G. BROWN, Colorado Springs.

To Camp Cody, N. M., Capt. J. G. ESPY, Trinidad.

To Camp Crane, Pa., from Jefferson Barracks, Lieut. A. J. CHISHOLM, Antonito.

To Camp Kearney, Calif., base hospital, Capt. W. T. BRINTON, Cripple Creek.

To Camp MacArthur, Texas, base hospital, Capt. D. E. HOAG, Pueblo.

To Camp Sherman, Ohio, as assistant to camp surgeon, from Southern Department, Major C. R. POLLOCK, Rocky Ford.

To Denver, Colo., from Otisville, Capt. W. P. HARLOW, Boulder.

To Fort Riley for instruction, Capt. N. D. WELLS, Fort Morgan; Lieut. H. S. COOPER, Denver.

To New Haven, Conn., Capt. M. J. KEENEY, Pueblo.

The following order has been revoked: *To Camp Pike, Ark.*, from Fort Riley, Lieut. O. A. DUNCAN, Crawford.

Connecticut

To Camp A. A. Humphreys, Va., as camp psychiatrist, from Camp Wheeler, Capt. W. R. MILLER, Southington.

To Camp Beauregard, La., base hospital, from Camp Bowie, Capt. O. F. ROGERS, New Haven.

To Camp Crane, Pa., from Fort Oglethorpe, Lieut. G. O. WELLMAN, Clinton.

To Camp Gordon, Ga., base hospital, from Camp Shelby, Lieut. W. T. DRISCOLL, Norwich.

To Camp Hancock, Ga., from Camp Upton, Capt. J. F. HACKETT, Mansfield Depot.

To Camp Jackson, S. C., to examine the command for nervous and mental diseases, Lieut. C. F. VERNLAND, Hartford.

To Camp Shelby, Miss., from Camp Devens, Lieut. H. O. DIXON, Bridgeport.

To Fort Oglethorpe for instruction, Lieut. E. T. FALSEY, New Haven; from duty as a private, Lieut. A. B. GROSS, Hartford.

To Fort Sam Houston, base hospital, from Camp Hancock, Lieut. G. M. MELVIN, Middletown.

To Hoboken, N. J., from Camp Greene, Capt. H. G. ANDERSON, Waterbury, from Camp Lee, Lieut. R. H. RYDER, Waterbury.

To Pittsburgh, Pa., Carnegie Institute of Technology, from Camp Greene, Capt. W. T. OWENS, Hartford.

Delaware

To Lakewood, N. J., from Fort Oglethorpe, Lieut. A. K. LOTZ, Wilmington.

District of Columbia

To Camp Gordon, Ga., base hospital, from Fort Oglethorpe, Major C. M. DOLLMAN, Washington.

To Camp Lee, Va., base hospital, Lieut. E. SNOWDEN, Washington.

To Camp Lewis, Wash., base hospital, from Camp Hancock, Capt. O. C. COX, Washington.

To Camp Newton D. Baker, Texas, base hospital from Camp Gordon, Ga., Lieut. M. B. FISCHER, Washington.

To Fort Oglethorpe, for instruction, Lieut. O. J. COOK, Washington.

To Fort Riley, Lieut. W. B. CARR, Washington.

To Hoboken, N. J., from Camp Meade, Lieut. P. S. PUTZKI, Washington, from Fort McHenry, Capt. C. D. HAAS, Washington; from Surgeon General's Office, Lieut.-Col. F. W. WOOD.

To report to the commanding general Eastern Department, Capt. A. J. READ, Washington.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion *to Camp Meade, Md.*, base hospital, Capt. H. F. WARDEN, Washington.

The following order has been revoked: *To Camp A. A. Humphreys, Va.*, from Fort Myer, Capt. W. A. FRANKLAND, Washington.

Florida

To Camp Meade, Md., from Fort McHenry, Capt. A. H. FREEMAN, Starke.

To Camp Pike, Ark., base hospital, Capt. F. A. NORRIS, Jacksonville.

To Camp Sheridan, Ala., Lieut. S. A. SCRUGGS, Jacksonville.

To Fort Oglethorpe for instruction, Lieuts. W. F. ROSBOROUGH, Gainesville; W. S. MICKLER, Lee.

To Hoboken, N. J., from Fort McHenry, Lieut. W. D. CAWTHON, Panama City.

Georgia

To Arcadia, Fla., Door Field, Capt. J. T. McCALL, Rome.

To Camp Hancock, Ga., base hospital, Lieut. J. E. DIEHL, Macon.

To Camp Jackson, S. C., base hospital, Capt. T. H. HALL, Macon; Lieut. J. H. STEWART, Athens.

To Camp Joseph E. Johnston, Fla., from Fort Oglethorpe, Lieut. W. A. DEAN, Rome.

To Camp Logan, Texas, as orthopedic surgeon, from Fort Oglethorpe, Lieut. C. M. WEST, Atlanta.

To Camp MacArthur, Texas, Lieut. S. B. BRAY, Savannah.

To Camp Sheridan, Ala., Lieuts. C. B. MEADOWS, Morven; T. J. HOLTON, Thomasville; from Camp Dodge, Lieut. C. A. ALMAND, Lithonia.

To Camp Sherman, Ohio, base hospital, from Fort Oglethorpe, Lieut. R. B. LAMB, Demorest.

To Camp Wadsworth, S. C., from Camp Jackson, Lieut. J. F. BURKHALTER, Morven.

To Fort Myer, Va., from Fort Oglethorpe, Lieut. W. E. WOFFORD, Cartersville.

To Fort Oglethorpe, from duty as private, Lieut. B. W. YAWN, Alamo. For instruction, Capts. J. D. MANGET, Atlanta; J. D. MAULDIN, New Holland; G. H. JOHNSON, Savannah; Lieuts. J. C. HOLLIDAY, Athens; C. B. GREER, Brunswick; R. C. MONTGOMERY, Butler; C. L. EDGE, Columbus; J. S. SAPPINGTON, Columbus; C. C. BRANNEN, Moultrie; E. L. BISHOP, Savannah; E. W. GRIFFIN, Springfield; W. T. SMITH, Tifton; J. A. OLIVER, Waycross.

To Hoboken, N. J., from Camp Upton, Lieut. T. B. KING, Sandersville; from Fort McHenry, Lieut. V. L. BROWN, Fort Valley; from Fort Oglethorpe, Capt. J. A. SELDON, Macon; from Williamsbridge, Lieut. C. E. WAITS, Atlanta.

To New Haven, Conn., Yale Army Laboratory School, for instruction, Lieut. W. H. MALONE, Villa Rieu.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion *to Fort Oglethorpe* for instruction, Capt. L. W. CHILDS, Atlanta.

To Walter Reed General Hospital, D. C., Capt. C. BARROW, Savannah.

Honorably discharged on account of physical disability incurred in line of duty, Lieut. B. F. BOND, Canon.

Idaho

To Camp Cody, N. M., Capt. J. M. FAIRLY, Orofino; Lieut. S. T. PATTERSON, Mackay.

To Fort Oglethorpe for instruction, Lieut. E. N. ROBERTS, Pocatello.

To Fort Riley, Capt. J. C. DWYER, Coeur D'Alene. For instruction, Lieuts. H. L. WILLSON, Idaho Falls; J. M. LYLE, Peck.
Honorably discharged, Lieut. F. W. MITCHELL, Blackfoot.

Illinois

To Camp Beauregard, La., from Camp Bowie, Capt. G. W. SCUPHAM, Chicago, Camp Zachary Taylor, Capt. W. R. LARKIN, Lieuts. M. S. PEDOTT, Chicago; F. G. OSTROWSKI, Cicero. Base hospital, Lieut. C. R. KERR, Anchor.
To Camp Bowie, Texas, base hospital, Lieut. C. H. WIENEKE, Chicago.
To Camp Cody, N. M., base hospital, Lieut. P. D. LYONS, Chicago; from Camp Grant, Capt. A. F. BYFIELD, Chicago.
To Camp Crane, Pa., from Camp Custer, Lieut. J. C. KACZKOWSKI, Chicago.
To Camp Custer, Mich., base hospital, from Camp Pike, Capt. R. B. NYBERG, Harrisburg.
To Camp Dodge, Iowa, Capts. J. L. MANNING, R. A. SMITH, Chicago. Base hospital, Lieut. K. A. MEYER, Chicago.
To Camp Forrest, Ga., from Fort Oglethorpe, Lieut. E. W. SEABURG, Chicago.
To Camp Gordon, Ga., base hospital, from Camp Shelby, Lieut. E. V. DEL BECCARO, Chicago.
To Camp Greene, N. C., base hospital, from Camp Sevier, Major I. C. FRIEDMAN, Chicago; from Williamsbridge, Lieut. H. A. ROSENBAUM, Chicago. With the board examining troops for tuberculosis, from Camp Hancock, Lieut. A. S. CAMPBELL, Oak Forest.
To Camp Hancock, Ga., Lieut. H. D. FAST, Mackinaw.
To Camp John Wise, Texas, from Camp Kelly, Lieut. G. S. MIKKELSON, Chestnut.
To Camp Joseph E. Johnston, Fla., from Fort Oglethorpe, Lieut. J. MOLES, Chicago.
To Camp Lee, Va., with the board examining the troops for cardiovascular diseases, Lieut. C. R. WILEY, Chicago.
To Camp McClellan, Ala., from Camp A. A. Humphreys, Lieut. H. REINSCH, Chicago.
To Camp Meade, Md., from Fort McHenry, Lieut. P. G. KITTERMAN, Chicago.
To Camp Newton D. Baker, Texas, base hospital, from Camp Devens, Capt. T. W. MORGAN, Virden.
To Camp Sheridan, Ala., Lieuts. J. J. BARTH, F. A. SMITH, Chicago, from Camp Dodge, Lieut. A. J. WEIGEN, Chicago.
To Camp Sherman, Ohio, base hospital, from Camp Zachary Taylor, Lieut. J. F. HENDERSON, Charleston.
To Camp Wadsworth, S. C., from Camp Dodge, Lieut. F. W. GAARDE, Chicago.
To Camp Wheeler, Ga., base hospital, Capt. A. E. GAMMAGE, Chicago.
To Camp Zachary Taylor, Ky., Capt. H. C. MUNSON, Rushville. Base hospital, Lieut. L. C. DUNLAP, Bath; from Camp Gordon, Lieut. J. MEYER, Chicago.
To Fort Benjamin Harrison, Ind., base hospital, from Fort Oglethorpe, Lieut. G. B. THOMAS, Hazel Dell.
To Fort Oglethorpe, base hospital, Lieut. A. H. WEIRICH, Jacksonville. For instruction, Capts. W. YEATES, Bonfield; D. C. ROACH, Burlington; C. E. CREER, Charleston; D. M. OLSON, W. A. PLICE, T. J. WILLIAMS, Chicago; H. H. WEST, Elgin; R. N. LANE, Gibson City; R. E. STEVENS, Rochelle; Lieuts. G. D. BRAND, P. H. BRONDE, C. G. HAIDOPOULOS, L. H. HILLS, E. HURWITZ, Chicago; C. E. DONAHOE, East Moline; C. W. RUTHERFORD, Newman; W. I. GREEN, Sumner; C. E. KELSO, Thomasboro.
To Fort Snelling, Minn., base hospital, from Fort Oglethorpe, Lieut. M. C. SCHENK, Rushville.
To Hoboken, N. J., from Camp Crane, Lieut. J. E. MIECZYNSKI, North Chicago; from Camp Dix, Capt. C. A. ROBBINS, Dixon; from Camp Jackson, Lieuts. M. M. KULVINSY, Chicago; R. E. LOGAN, Galena; from Camp Meade, Lieut. G. F. FARMAN, Chicago; from Camp Sherman, Lieut. R. F. HERNDON Springfield; from Camp Upton, Lieut. H. E. VAN EPPS, Sterling; from Camp Wheeler, Capt. W. C. WILLIAMS, Chicago; from duty as a contract surgeon, Capt. J. P. COMEGYS, Rock Island; from Fort Oglethorpe, Major C. D. WILKINS, Chicago.
To Lakewood, N. J., Lieut. C. J. McMULLEN, Chicago.
To New Haven, Conn., Capt. E. H. BUTTERFIELD, Ottawa; Lieut. VAN B. MAURICAN, Rockton; Yale Army Laboratory School, for instruction, Capt. H. JACKSON, Lieut. R. S. AUSTIN, Chicago.
To report to the commanding general Central Department, Capt. J. F. SCHRADER, Bridgeport. Lieuts. C. E. BEAVERS, Barry; F. M. McNAIR, Sugar Grove. Southern Department, from Camp Cody, Lieut. W. P. DAVIDSON, Sullivan.
To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion *to Camp Lee, Va.*, base hospital, Capt. S. R. CATLIN, Rockford.
To Syracuse, N. Y., Capts. A. E. MOWRY, E. A. OLIVER, Chicago.
Honorably discharged on account of physical disability existing prior to entrance into the service, Lieut. L. H. GREEN, Johnston City.
Resignations of Lieuts. G. J. RIVARD, JR., Assumption, and W. L. NOBLE, Chicago, accepted.
The following orders have been revoked: *To Camp Upton, N. Y.*, with the board examining the troops for cardiovascular diseases, Lieut. S. B. LEISER, Chicago. To Fort Oglethorpe for instruction, Lieut. Y. JORANSON, Chicago.

Indiana

To Camp Abraham Eustis, Va., camp hospital, from Camp Sherman, Capt. W. W. ROSE, La Porte.
To Camp Beauregard, La., base hospital, Capt. E. M. VAN BUSKIRK, Fort Wayne; Lieut. E. E. MACE, New Palestine.
To Camp Bowie, Texas, base hospital, Lieut. F. KLEINMAN, Hebron.
To Camp Devens, Mass., Lieut. J. C. THAYER, Arcadia.
To Camp Dodge, Iowa, Lieut. H. C. METCALF, Andersonville. Base hospital, from Fort Oglethorpe, Lieut. S. G. SMELSER, Richmond.
To Camp Gordon, Ga., base hospital, from Fort Oglethorpe, Capt. A. L. KNAPP, South Bend.
To Camp Greene, N. C., base hospital, from Camp Sevier, Lieut. M. S. TETERS, Indianapolis.
To Camp Joseph E. Johnston, Fla., base hospital, from Camp Cody, Capt. B. VAN SWERINGEN, Fort Wayne; from Fort Oglethorpe, Lieut. L. H. RATLIFF, Lawrence.
To Camp Meade, Md., from Fort McHenry, Lieuts. G. C. PRICE, Judson; J. E. FREED, Terre Haute.
To Camp Sevier, S. C., base hospital, from Fort Oglethorpe, Lieut. P. HOFFMAN, Decatur.
To Camp Sheridan, Ala., Lieut. R. V. HANNELL, LaFayette.
To Camp Sherman, Ohio, base hospital, from Fort Oglethorpe, Lieut. J. KENTLING, Bloomington.
To Fort Benjamin Harrison, Ind., base hospital, from Fort Oglethorpe, Lieuts. M. B. GWIN, Renssellaer; G. E. SMAIL, Veedersburg.
To Fort Oglethorpe for instruction, Capts. C. A. ROGERS, Freeport; A. W. LLOYD, Hammond; H. M. SCHULTZ, Logansport; Lieuts. E. E. BROCK, Anderson; A. R. KERR, Attica; C. E. QUINN, Burlington; H. H. BOTTS, Colfax; E. H. UNDERWOOD, Fort Wayne; F. W. DIXON, Franklin; W. H. MIKESCH, Hammond. On completion *to his proper station*, from Fort Sill, Lieut. M. B. GUTHRIE, Bedford.
To Fort Snelling, Minn., base hospital, from Fort Oglethorpe, Capt. J. C. BOHN, Terre Haute.
To Hoboken, N. J., from Camp Greene, Capt. H. J. WHITE, Hammond; from Camp Meade, Capt. J. M. FOUTS, Richmond; from Fort Oglethorpe, Lieut. T. P. GOVAN, Richmond.
To Lakewood, N. J., Capt. C. R. STRICKLAND, Indianapolis.
To report to the commanding general, Central Department, Capt. D. B. McCLARY, Gale.
To Walter Reed General Hospital, D. C., Lieut. L. C. SAMMONS, Shelbyville.

Iowa

To Camp Beauregard, La., base hospital, from Camp Bowie, Lieut. H. H. DILLEY, Des Moines; from Camp Travis, Lieut. R. M. CULLISON, Montezuma.
To Camp Bowie, Texas, base hospital, Lieut. B. S. BARNES, Shenandoah.
To Camp Cody, N. M., base hospital, Lieut. M. OCHS, Eldredge.
To Camp Custer, Mich., base hospital, from Camp Pike, Lieut. F. A. PRIESSMAN, Mechanicsville.
To Camp Dix, N. J., from Fort Riley, Lieut. W. DIVEN, Iowa City.
To Camp Dodge, Iowa, Lieuts. L. K. MEREDITH, Des Moines; O. F. PARISH, Grinnell; L. W. PENCE, State Center. Base hospital, Capt. G. T. McCAULIFF, Webster City.
To Camp Joseph E. Johnston, Fla., from Fort Oglethorpe, Capt. J. M. GARRETT, Fort Dodge.
To Camp Pike, Ark., base hospital, Capt. I. H. WHITELEY, Bonaparte; Lieuts. C. H. HERRMANN, Amana; J. R. WINNETT, Ebora.
To Camp Sherman, Ohio, base hospital, Capt. F. C. SAGE, Waterloo.
To Fort Des Moines, Iowa, Capt. H. B. GRATIOT, Dubuque.
To Fort Oglethorpe for instruction, Capts. C. B. BURKE, Algona; T. S. LACEY, Glenwood; Lieuts. L. K. MEREDITH, Des Moines; J. J. BEATTY, Farragut.
To Fort Riley, Capts. J. D. GEISSINGER, Spirit Lake; J. E. HOYT, Corning; Lieuts. G. R. GOULD, Conrad.
To Minneapolis, Minn.: Dunwoody Institute, from Camp Zachary Taylor, Lieut. J. S. COOPER, Burlington.
To Washington, D. C., Surgeon-General's Office, from Camp Jackson, Lieut. G. H. STEELE, Belmond.
To Wichita Falls, Texas, as instructor, Lieut. C. KAIL, Stratford.

Kansas

To Camp Beauregard, La., base hospital, Capt. F. C. CAVE, Winfield; Lieut. F. A. TRUMP, Ottawa. From Fort Oglethorpe, Lieut. L. D. MILLS, Greeley.
To Camp Cody, N. M., Lieut. W. H. ILIFF, Crestline. Base hospital, Capt. F. H. SLAYTON, Wichita.
To Camp Crane, Pa., from Fort Riley, Capt. J. N. SHERMAN, Thayer.
To Camp Pike, Ark., base hospital, Lieut. H. P. KNOWLES, Sterling.
To Camp Zachary Taylor, Ky., base hospital, from Fort Oglethorpe, Capt. H. G. SNYDER, Seneca.
To Fort Oglethorpe for instruction, Capts. V. H. BENTLEON, Kansas City; J. W. CHENEY, Wichita.
To Fort Riley, Lieuts. B. B. MASON, Grenola; R. O. PRESTON, Meriden. For instruction, Capt. L. VAN SAMS, Topeka; Lieuts. W. S. PROUT, Concordia; R. A. TAYLOR, Meriden; O. R. BRITTAIN, Salina; J. H. O'CONNELL, Topeka; A. H. NOSSAMAN, Whitewater.
To New Haven, Conn., Yale Army Laboratory School, for instruction, Lieut. E. F. CLARK, Mayfield.
To New York, Neorological Institute, for intensive training, from Washington, Lieut. E. H. SCHLEGEL, Wichita.
To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion *to Walter Reed General Hospital*, Capt. H. WILKINSON, Kansas City.

Kentucky

To Camp Hancock, Ga., Capt. W. O. HOPPER, Perryville.
To Camp Pike, Ark., base hospital, Major W. A. JENKINS, Louisville.
To Camp Sherman, Ohio, base hospital, from Camp Zachary Taylor, Capt. E. T. GALLAGHER, Somerset.
To Camp Zachary Taylor, Ky., Lieut. J. L. VALLANDINGHAM, Lexington.
To Fort Oglethorpe for instruction, Capt. I. T. FUGATE, Louisville; Lieuts. E. C. MORGAN, Adairville; G. M. STURGELL, Ashland; R. W. MEADOR, Irvington; J. E. EDWARDS, Lancaster; E. L. PIRKEY, Louisville; H. R. SKAGGS, Terryville.
To Fort Ontario, N. Y., from Fort Oglethorpe, Lieut. H. G. HERRING, Lexington.
To Fort Snelling, Minn., base hospital, from Fort Oglethorpe, Lieut. R. C. SIEVERS, Pine Knot.
To Hampton, Va., Capt. S. D. WETHERBY, Middletown.
To Hoboken, N. J., from Walter Reed General Hospital, Lieut. W. G. ECKMAN, Covington. Base hospital, Lieut. C. E. VIDT, Russell.
To Hot Springs, N. C., Capt. B. K. MENEFEE, Covington.
To New Haven, Conn., Yale Army Laboratory School, for instruction, Capt. H. T. LIGGETT, Louisville.
To report to the commanding general, Central Department, Lieut. J. B. STROUD, Louisville.
Honorably discharged on account of physical disability existing prior to entrance into the service, Capt. C. THOMPSON, Louisville.

Louisiana

To Ann Arbor, Mich., State Psychopathic Hospital, for intensive training, from Fort Sam Houston, Capt. T. W. EVANS, Jackson.
To Camp Crane, Pa., from Camp Sherman, Lieut. W. B. HUNTER, Shreveport.
To Camp Joseph E. Johnston, Fla., from Fort Oglethorpe, Lieut. G. A. MAYER, New Orleans.
To Camp Upton, N. Y., base hospital, Capt. F. J. FRATER, Shreveport.

To Camp Wadsworth, S. C., Capt. T. R. RUDOLF, New Orleans.
To Fort Banks, Mass., from Camp Greene, Lieut. A. C. KAPPEL, Franklin.
To Fort Oglethorpe for instruction, Capts. A. B. BUGG, Belcher; R. C. TOMPKINS, Minden; Lieuts. T. B. WILSON, Baton Rouge; S. F. MARTIN, Minden; J. E. SLICOR, Shreveport; J. M. EHLERT, Springfield.
The following order has been revoked: *To Camp Lee*, base hospital, Lieut. T. LATIOLAIS, New Orleans.

Maine

To Camp Meade, Md., base hospital, Capt. J. P. TUNIS, Northeast Harbor.
To Fort Oglethorpe for instruction, Lieuts. R. W. CLARKE, Deer Isle; W. J. LEWIS, Freeport.
To Fort Slocum, N. Y., from Fort Oglethorpe, Lieut. W. H. KENNISON, Madison.
To Hoboken, N. J., base hospital, from Williamsbridge, Lieut. L. B. BRADFORD, Rockland.
To Washington, D. C., from Camp Wheeler, Lieut. H. L. WILLIAMS, Auburn.
The following order has been revoked: *To Camp Grant, Ill.*, from Fort Riley, Lieut. J. L. PEPPER, Madison.

Maryland

To Army Medical School, Lieut. J. P. SHEARER, Baltimore.
To Camp Crane, Pa., from Camp Wadsworth, Capt. F. A. G. MURRAY, Mount Savage.
To Camp Custer, Mich., base hospital, from Camp Meade, Capt. M. J. SIMMONS, Indian Head.
To Camp Dodge, Iowa, base hospital, Lieut. J. K. ORMOND, Baltimore, from Fort Oglethorpe, Lieut. F. P. SNODGRASS, Darlington.
To Camp McClellan, Ala., base hospital, from Camp Shelby, Major H. GROSS, Baltimore.
To Camp Meade, Md., base hospital, from Fort McHenry, Capt. J. E. BURNS, Baltimore. *To examine the command* for nervous and mental diseases, Capt. G. F. SARGENT, Townson.
To Fort Oglethorpe for instruction, Lieut. W. M. HOLLIDAY, Baltimore.
To Hoboken, N. J., from Camp Greene, Lieut. H. R. MANN, Mardela Springs; from Camp Meade, Lieut. E. F. GOTT, Baltimore.
Resignation of Capt. J. M. H. ROWLAND, Baltimore, accepted.

Massachusetts

To Baltimore, Md., Johns Hopkins Hospital, for instruction, from Fort Oglethorpe, Lieuts. H. C. PERKINS, Boston; E. E. SMITH, Webster.
To Camp Custer, Mich., base hospital, from Camp Pike, Lieut. F. H. RUSSELL, Wayside.
To Camp Dix, N. J., Lieuts. H. L. QUIMBY, Gloucester; W. F. BRADY, Holyoke; H. A. CALLAHAN, Jamaica Plain; J. B. A. JOHNSON, Lowell; W. T. HOLLAND, West Roxbury. Base hospital, Lieut. C. E. ALLARD, Dorchester.
To Camp Fremont, Calif., base hospital, Major E. A. COATES, Jr., Chelsea.
To Camp Greene, N. C., from Camp Sevier, Lieut. J. N. DOYLE, Fall River. Base hospital, Capt. E. S. BAGNALL, Groveland; from Camp Sevier, Lieut. A. A. SHAPIRA, Boston. With the board examining troops for tuberculosis, from Camp Hancock, Lieut. J. J. COSGROVE, Westfield.
To Camp Hancock, Ga., base hospital, Lieuts. N. N. LEVINS, Boston; J. J. CURTIN, Waltham; from Camp Shelby, Lieut. A. N. BALL, Northampton.
To Camp Jackson, S. C., base hospital, from Fort Oglethorpe, Capt. R. B. SCALES, Boston.
To Camp Joseph E. Johnston, Fla., from Fort Oglethorpe, Lieut. J. E. CONNELLY, Brookline.
To Camp Sevier, S. C., base hospital, from Fort Oglethorpe, Lieut. J. P. KEARNEY, Lowell.
To Camp Shelby, Miss., from Camp Devens, Lieut. F. G. BRIGHAM, Boston.
To Camp Sheridan, Ala., from Camp Dodge, Lieut. J. J. McCAFFREY, Attleboro.
To Camp Sherman, Ohio, from Camp Wheeler, Lieuts. A. F. BUDRESKI, Brockton; I. W. FRAIM, Waltham.
To Fort Banks, Mass., from Northwestern Department, Major W. COGSWELL, Haverhill.
To Fort Oglethorpe for instruction, Capt. R. J. WARD, Worcester; Lieuts. R. M. LORD, S. N. VOSE, Boston; W. W. COOK, Brookline; J. B. BIGELOW, H. E. LYNCH, Holyoke; J. P. A. BACON, Lawrence; A. B. MILLS, Somerville; C. R. VINAL, Turner's Falls; E. F. HULL, West Stockbridge; E. R. LEIB, Worcester.
To Fort Snelling, Minn., base hospital, from Fort Oglethorpe, Capt. H. W. JEWETT, Lowell; Lieut. T. A. SHAUGHNESSY, Leominster.
To Governor's Island, N. Y., Major E. A. CODMAN, Boston.
To Hoboken, N. J., from Camp Custer, Major C. B. HOLLINGS, Boston, from Camp Lee, Lieut. A. J. CHOATE, Gloucester.
To Lakewood, N. J., for instruction in cardiovascular diseases, and on completion *to his proper station*, from Camp A. A. Humphreys, Lieut. H. A. WALKER, Somerville.
To New York, Hospital for Ruptured and Crippled, for instruction, from Hoboken, Lieut. L. S. KEMP, Canton.
To Plattsburg Barracks, N. Y., from Camp Lee, Lieut. M. W. PECK, Marblehead.
Honorably discharged on account of physical disability existing prior to entrance into the service, Lieut. W. J. DWYER, Boston.

Michigan

To Army Medical School for instruction, and on completion *to Boston, Mass.*, Harvard Graduate School of Medicine, for instruction, from Fort Oglethorpe, Major N. S. MACDONALD, Houghton.
To Camp Dix, N. J., base hospital, Capt. J. P. PRATT, Detroit.
To Camp Dodge, Iowa, Capt. J. C. CLIPPERT, Detroit.
To Camp Gordon, Ga., to examine the command for nervous and mental diseases, from Fort Oglethorpe, Capt. J. F. BERRY, Kalamazoo.
To Camp Jackson, S. C., base hospital, Capt. J. S. BROTHERHOOD, Grand Rapids.
To Camp Joseph E. Johnston, Fla., from Fort Oglethorpe, Capt. J. P. BLAND, Adrian.
To Camp Pike, Ark., as orthopedic surgeon, from Fort Oglethorpe, Lieut. J. W. GORDON, Detroit.
To Camp Sheridan, Ala., from Camp Dodge, Major B. R. CORBUS, Grand Rapids.
To Camp Upton, N. Y., as orthopedic surgeon, and on completion *to Boston, Mass.*, Harvard Graduate School of Medicine, for instruction, from Fort Oglethorpe, Capt. H. W. LONG, Escanaba.
To Camp Wheeler, Ga., base hospital, from Pittsburgh, Capt. F. P. BENDER, Caro.
To Camp Zachary Taylor, Ky., base hospital, Lieut. D. M. GRISWOLD, Crosse Points.
To Fort Oglethorpe for instruction, Capt. C. J. LARSON, Mogannee; Lieuts. R. F. MILLER, Adrian; J. WALTZ, Brown City; R. D. HENSEL, Detroit; W. A. SINGLETON, Hickory Corners; J. H. RAPP, Lansing; L. H. DUGUID, Ludington; D. W. PATTERSON, Port Huron.
To Fort Omaha, Neb., from Fairfield, Lieut. R. D. SCOTT, Rudyard, from Fort Wayne, Lieut. C. S. STRAIN, Rochester.
To Fort Sheridan, Ill., base hospital, from Fort Oglethorpe, Capt. V. J. HOOPER, Detroit.
To Otisville, N. Y., from New Haven, Capt. R. B. HARKNESS, Houghton.
To New York, Neurological Institute, for intensive training, Capt. H. A. LUCE, Detroit.
To West Point Military Academy, Capt. G. E. WINTER, Jackson.
The following order has been revoked: *To Camp Forrest, Pa.*, for duty, from Camp A. A. Humphreys, Lieut. H. L. HURLEY, Jackson.

Minnesota

To Ann Arbor, Mich., State Psychopathic Hospital, for intensive training, from Washington, D. C., Lieut. W. B. MARTIN, Fergus Falls.
To Camp Cody, N. M., Capt. O. H. WILCOX, Minneapolis.
To Camp Crane, Pa., from Camp Devens, Capt. F. P. MOERSCH, Minneapolis; from Camp Dodge, Capt. C. E. CONNOR, Minneapolis; from Jefferson Barracks, Lieut. L. M. KEENE, Alexandria; from Memphis, Capt. A. J. WENTWORTH, Mankato.
To Camp Custer, Mich., base hospital, from Camp Pike, Lieut. P. R. HANKEE, Cannon Falls.
To Camp Dodge, Iowa, base hospital, Capts. F. W. SPICER, Duluth; A. W. HILGER, St. Paul.
To Camp Forrest, Ga., from Fort Oglethorpe, Lieut. D. TOWNSEND, Belgrade.
To Camp Fremont, Calif., base hospital, from Camp Devens, Lieut. O. A. GROEBNER, New Ulm.
To Camp Sherman, Ohio, base hospital, from Camp Zachary Taylor, Lieut. H. C. McINTOSH, St. Paul.
To Camp Wadsworth, S. C., from Camp Dodge, Lieuts. C. J. McGUIRE, Altura; A. GULLIXSON, Bricelyn; M. SEHAM, Minneapolis.
To Camp Zachary Taylor, Ky., base hospital, Lieut. F. E. KUNCE, St. Paul.
To Fort Banks, Mass., from Camp Greene, Lieut. B. S. BOHLING, Sandstone.
To Fort Oglethorpe for instruction, Capt. J. R. KUTH, Duluth.
To Fort Riley, Capt. K. H. SCHMIDT, Minneapolis.
To Fort Snelling, Minn., base hospital, from Fort Oglethorpe, Capt. J. F. LYNN, Waseca.
To Hoboken, N. J., from Camp Greene, Capt. W. C. CHAMBERS, Blue Earth, from Fort Oglethorpe, Lieut. U. R. WILSON, Brainerd.
To Washington, D. C., Surgeon-General's Office, from Rochester, Col. W. J. MAYO, Rochester.
Honorably discharged on account of physical disability existing prior to entrance into the service, Capt. R. E. MORRIS, Minneapolis.
The following order has been revoked: *To Camp Grant, Ill.*, from Madison, Lieut. J. D. WALLER, Willmont.

Mississippi

To Camp Beauregard, La., base hospital, from Camp Bowie, Lieut. H. C. DENSON, Vicksburg.
To Camp Gordon, Ga., base hospital, from Camp Shelby, Capt. H. P. BOSWELL, New Albany.
To Camp Greene, N. C., from Camp Wadsworth, Lieut. J. G. BACKSTROM, Tutwiler.
To Camp Jackson, S. C., base hospital, from Camp Joseph E. Johnston, Capt. I. S. EWING, Vicksburg.
To Camp Wadsworth, S. C., base hospital, Lieut. W. A. TOOMER, Tupelo.
To Fort Oglethorpe for instruction, Lieut. W. R. GRAVES, Jackson.
To Fort Omaha, Neb., from Fairfield, Lieut. J. M. REYNOLDS, Shubuta.
Honorably discharged, Capt. O. R. FORE, Flora.

Missouri

To Camp Beauregard, La., base hospital, from Fort Oglethorpe, Lieuts. M. F. SEWELL, Kansas City; E. A. SCOTT, St. Louis.
To Camp Bowie, Texas, base hospital, Capt. F. J. SULLIVAN, St. Louis.
To Camp Cody, N. M., Lieut. C. A. GIBBS, Greensburg.
To Camp Crane, Pa., from Camp Bowie, Lieut. J. M. BLAKEMORE, St. Louis.
To Camp Dix, N. J., from Fort Riley, Lieuts. W. L. ABNEY, Blackwater; C. M. COUNSEL, Kansas City. Base hospital, Capt. Y. D. CRAVEN, Excelsior Springs; Lieut. D. A. THOMSON, St. Louis.
To Camp Dodge, Iowa, Capt. E. POWERS, Carthage; Lieuts. D. J. ROYER, Joplin; A. H. RINGEN, Sweet Springs.
To Camp Greene, N. C., from Fort Oglethorpe, Lieut. A. W. EBELING, Warrenton.
To Camp Meade, Md., from Fort McHenry, Major R. BURNS, Jr., St. Louis.
To Camp Pike, Ark., from duty as a private, Lieut. H. L. BAEPLOR, St. Louis. Base hospital, Capt. J. H. GROSS, Webster Groves; Lieut. J. D. VAM CLEVE, Malden. *To examine the command* for nervous and mental diseases, Capt. H. S. MAJOR, Fulton.
To Camp Shelby, Miss., from Camp Devens, Lieut. W. K. BROWN, St. Louis.
To Camp Sheridan, Ala., Lieuts. S. A. STADLER, Kansas City; G. W. HAWKINS, Salisbury.
To Camp Sherman, Ohio, base hospital, Capt. I. J. HARRIS, St. Louis; from Camp Zachary Taylor, Lieut. H. S. MAXWELL, Hopkins.
To Fort Oglethorpe for instruction, Capts. O. C. HORST, Springfield; O. A. AMBROSE, R. C. HARRIS, St. Louis; Lieuts. D. J. ROYER, Joplin; F. A. JOHNSON, Kohoka; F. W. HAYNES, J. T. MALONE, St. Louis.
To Fort Ontario, N. Y., Lieut. L. B. BROWN, North Berwick.
To Fort Riley, Capts. R. D. MOORE, Clayton; S. C. VAUGHN, Hurricane; J. W. BOYD, Sarcoxie; C. B. TRADER, Sedalia; Lieut.

S. E. PEDON, St. Louis; from Camp Cody, Major E. L. OPIE, St. Louis. For instruction, Capts. E. L. MATHIAS, Kansas City; J. F. HARRISON, Mexico; A. SCHUCK, St. Louis; T. A. BLACKMORE, Windsor; Lieuts. L. M. DALEY, Hamilton; E. A. ALBERS, C. WEHR, Kansas City; R. R. KELLEY, Savannah; J. S. HOMAN, O. T. UPSHAW, St. Louis.

To Hoboken, N. J., from Camp Jackson, Lieut. D. P. FERRIS, St. Louis; from Fort Sheridan, Capt. E. L. COOLEY, St. Louis.

To Mineola, L. I., N. Y., Hazelhurst Field, from Camp Dick, Capt. A. L. LUDWICK, Kansas City.

To New Haven, Conn., Yale Army Laboratory School, for instruction, Capt. S. E. VAUGHN, Hurricane.

To report to the commanding general, Central Department, Capt. T. A. McCLENNAN, Marshall; Lieut. C. P. MEGEE, Hartsburg.

To Waynesville, N. C., from New Haven, Lieut. E. J. BUTZKE, Bowling Green.

To Whipple Barracks, Ariz., from Camp MacArthur, Capt. W. E. CARY, Kansas City.

To Wichita Falls, Texas, from Camp Dick, Lieut. C. C. COATS, Winston.

Honorably discharged, Capt. A. M. GANAWAY, Albany.

The following orders have been revoked: *To Camp Devens, Mass.*, from Orono, Me., Capt. E. X. LINK, St. Louis. *To Camp Sherman, Ohio*, from Indianapolis, Lieut. H. L. HESS, Kansas City.

Montana

To Camp Fremont, Calif., base hospital, Lieut. W. G. PALM, Joplin.

To Fort Riley, Lieut. W. R. SMITH, Stockett. For instruction, Lieut. R. R. FRIZZELL, Great Falls.

To report to the commanding general, Western Department, Capt. L. BERNHEIM, Butte.

The following order has been revoked: *To Fort Oglethorpe* for instruction, from Fort Riley, Lieut. C. A. GARDNER, Columbus.

Nebraska

To Boston, Mass., Harvard Graduate School of Medicine, for instruction, and on completion *to his proper station*, from Camp Dodge, Capt. H. R. MINER, Falls City.

To Camp Beauregard, La., base hospital, from Fort Oglethorpe, Capt. I. L. BOGEN, Lincoln.

To Camp Crane, Pa., from Camp Lee, Lieut. T. E. ATKINSON, Mullen.

To Camp Dodge, Iowa, Capt. G. H. GILMORE, Murray.

To Camp Logan, Texas, base hospital, Capt. C. A. ALLENBURGER, Columbus.

To Camp Zachary Taylor, Ky., base hospital, Lieut. S. G. ZEMER, Lincoln.

To Fort Oglethorpe for instruction, Lieut. R. L. SMITH, Lincoln.

To Fort Riley, Lieut. L. L. CRAMER, Harrison. For instruction, Capt. O. H. MARGARET, Papillion; Lieuts. H. G. THOMPSON, David City; W. T. WILDHABER, Plymouth.

To New Haven, Conn., Yale Army Laboratory School, from Fort Riley, Lieut. W. C. BECKER, Papillion.

To San Francisco, Calif., for instruction, and on completion *to Letterman General Hospital*, from Arcadia, Capt. F. E. BRAUCHT, Coleridge.

Resignation of Lieut. H. B. FROSH, Lincoln, accepted.

The following order has been revoked: *To Camp Grant, Ill.*, from Fort Riley, Capt. F. D. BURGESS, Cedar Rapids.

Nevada

To Fort Riley for instruction, Lieut. R. ST. CLAIR, Reno.

New Hampshire

To Camp John Wise, Texas, from Camp Kelly, Capt. D. R. CHASE, Lebanon.

To Fort Oglethorpe for instruction, Capts. H. B. CARPENTER, Lancaster; P. J. McLAUGHLIN, Nashua; Lieuts. J. J. BUCKLEY, Milton; A. DAUDELIN, Nashua; A. C. LISTON, North Walpole.

New Jersey

To Baltimore, Md., Johns Hopkins Hospital, for instruction, from Fort Oglethorpe, Lieut. W. A. NEWELL, Trenton.

To Camp A. A. Humphreys, Va., Lieut. B. A. TREIBER, Trenton.

To Camp Dix, N. J., Capt. C. B. GRIFFITHS, Newark; Lieut. H. S. GARRETT, Park Ridge.

To Camp Meade, Md., from Fort McHenry, Capt. L. E. POOLE, West Hoboken; Lieuts. G. P. MEYER, Camden; L. M. KALAHER, Jersey City. As orthopedic surgeon, from Fort Oglethorpe, Lieut. F. H. VON HOFE, Orange.

To Camp Shelby, Miss., base hospital, from Camp Sevier, Capt. S. T. QUINN, Elizabeth.

To Colonia, N. J., Lieut. D. M. P. MAGEE, Red Bank.

To Fort Oglethorpe for instruction, Capts. C. L. BOSSERT, Atlantic City; J. W. FARROW, Dover; F. B. MITCHELL, East Orange; W. A. McMURTRIE, Morristown; Lieuts. R. D'A. DENIG, Hackensack; B. M. HANCE, Hackettstown; H. J. PERLBERG, Jersey City; F. G. STRAHAN, Long Branch; JOHN D. TIDABACK, Newark; F. D. CRAWFORD, Ridgefield Park; H. D. WILLIAMS, Trenton; from Rockefeller Institute, Capt. C. R. NEARD, East Orange.

To Fort Sheridan, Ill., base hospital, from Camp Dix, Major J. N. TEETER, Englewood.

To Mineola, N. Y., Lieut. J. W. HURFF, Newark.

To New Haven, Conn., Lieut. G. P. CURTIS, Union.

To report to the governor of New Jersey as Medical Aide, Capt. H. B. COSTILL, Trenton.

To Williamsbridge, N. Y., from Camp Upton, Major W. A. SHERWOOD, Jersey City.

The following order has been revoked: *To Fort Oglethorpe* for instruction, Lieut. J. B. BOYD, Farmingdale.

New Mexico

To Fort Riley for instruction, Capt. B. E. HEDDING, Santa Fe; Lieut. H. W. GIBBS, Wagon Mound.

New York

To Ann Arbor, Mich., State Psychopathic Hospital, for intensive training, from Fort Oglethorpe, Lieuts. J. V. SWIERAT, Kings Park; J. J. LEARY, Utica.

To Baltimore, Md., to instruct enlisted men, Capt. W. G. PHILLIPS, Jr., Brooklyn.

To Camp A. A. Humphreys, Va., base hospital, Capt. H. L. RAYMOND, Collins.

To Camp Beauregard, La., base hospital, from Fort McHenry, Lieut. S. C. WOLFF, New York.

To Camp Cody, N. M., base hospital, from Fort Oglethorpe, Capt. B. C. DOUST, Syracuse.

To Camp Crane, Pa., from Fort Sam Houston, Capt. J. C. DAVIS, Rochester; from Newport News, Lieut. A. C. SILVERMAN, Syracuse; from New York, Lieut. H. W. WHEATON, Gloversville.

To Camp Custer, Mich., base hospital, from Camp Pike, Capts. N. W. JANNEY, L. H. TAFT, M. WARREN, New York.

To Camp Dix, N. J., Lieut. G. C. HACKETT, Portville. Base hospital, Capts. F. L. NELSON, Brooklyn; F. W. SPLINT, New York; from Camp Wheeler, Capt. D. T. McPHAIL, New York.

To Camp Forrest, Ga., from Camp Jackson, Lieut. W. C. MacDONALD, New York.

To Camp Gordon, Ga., as orthopedic surgeon, and on completion *to Boston, Mass.*, Harvard Graduate School of Medicine, for instruction, from Fort Oglethorpe, Lieut. T. L. McNAMARA, Corning. *To examine the command* for nervous and mental diseases, Lieut. T. W. NEUMANN, Poughkeepsie.

To Camp Greene, N. C., base hospital, from Camp Devens, Lieut. H. C. HAVILAND, Albany; from Camp Sevier, Capt. J. L. BRYSON, New York. *To examine the command* for mental and nervous diseases, Capt. I. HOLLEY, Brooklyn.

To Camp Hancock, Ga., base hospital, Capt. C. O. SAYRES, Rochester.

To Camp Jackson, S. C., base hospital, Major O. M. SCHWERDTFEGER, Capt. H. V. GUILE, New York.

To Camp Joseph E. Johnston, Fla., from Fort Oglethorpe, Major W. C. MILLER, New York; Lieut. F. L. BARNUM, Kingston.

To Camp Lewis, Wash., base hospital, from Camp Upton, Lieut.-Col. J. D. WHITHAM.

To Camp Logan, Texas, as orthopedic surgeon, from Fort Oglethorpe, Lieut. J. W. SMITH, Brooklyn.

To Camp McClellan, Ala., from Walter Reed General Hospital, Lieut. W. RAIM, Brooklyn.

To Camp Meade, Md., from Fort McHenry, Capts. H. W. JACKSON, New York; R. L. CROCKETT, Oneida; Lieut. W. E. DIEFENBACH, Nunda. Base hospital, Lieut. G. K. RHODES, Schenectady.

To Camp Pike, Ark., with the board examining the troops for tuberculosis, from Camp Sherman, Capt. E. P. EGLES, New York.

To Camp Raritan, Ky., as camp psychiatrist, from Camp Zachary Taylor, Capt. W. A. CONLON, Central Islip.

To Camp Sevier, S. C., base hospital, Lieut. S. McLEAN, New York.

To Camp Sheridan, Ala., base hospital, from Fort Oglethorpe, Lieut. H. C. JOHNSTON, New York.

To Camp Upton, N. Y., to examine the command for nervous and mental diseases, from New York, Lieut. S. L. REISER, New York.

To Camp Wadsworth, S. C., as orthopedic surgeon, and on completion *to Boston, Mass.*, Harvard Graduate School of Medicine, from Fort Oglethorpe, Lieut. F. H. CARBER, Forest Hills. *To examine the command* for nervous and mental diseases, Lieut. H. W. KEMP, Brooklyn.

To Colonia, N. J., Capt. L. R. McCOLLOM, New York.

To Fort McHenry, Md., from Camp Custer, Major J. B. BISSELL, New York.

To Fort Oglethorpe, from Camp Wheeler, Lieuts. G. N. ACKER, 2d, Fort H. G. Wright; W. C. FARGO, New York. For instruction, Capts. M. L. SECCOMB, Milo; E. ADAMS, B. J. BECK, W. C. BOWERMAN, New York; F. OVERTON, Patchogue; L. R. MELLOR, Syracuse; Lieuts. J. GOULD, Allegheny; E. LEVY, W. MOEHLE, Brooklyn; R. L. COOLEY, E. J. LUDWIG, J. F. TRUDNOWSKI, Buffalo; I. W. KAHN, New York; from Camp Colt, J. J. CLARK, Olean; from duty as an enlisted man, Lieut. W. E. GALLAGHER, Niagara Falls.

To Fort Omaha, Neb., from Fort Wayne, Capt. M. B. WALTER, Lieut. J. J. LANCER, New York.

To Fort Ontario, N. Y., Capt. J. C. SMITH, Oneonta.

To Fort Snelling, Minn., base hospital, from Camp Lee, Major J. M. W. SCOTT, Schenectady.

To Hoboken, N. J., Major G. G. RAMBAUD, New York; from Camp Devens, Major C. H. YOUNG, New York; Capt. S. R. LEAHY, Brooklyn; from Camp Dix, Lieuts. A. G. LANGMANN, W. F. McTAGUE, New York; from Camp Greene, Lieuts. J. R. BOYD, New York; L. J. ATKINS, Olean; from Camp Meade, Capt. R. G. HOLT, Schenectady; from Fort Oglethorpe, Capt. T. H. ORSER, Cold Brook. Base hospital, from Camp Gordon, Capt. A. L. WARNER, Schenectady; from Camp Grant, Major G. W. JEAN, New York.

To Jefferson Barracks, Mo., base hospital, from Fort Oglethorpe, Lieut. J. BRANOWER, New York.

To Lakewood, N. J., from Fort Oglethorpe, Lieuts. W. W. LASHER, A. M. MORGENLANDER, New York.

To New Haven, Conn., Capt. D. B. JEWETT, Rochester; Lieut. S. A. BINDERMAN, New York; from Camp Zachary Taylor, Lieut. S. C. DARDEN, Poughkeepsie.

To New York, Bellevue Hospital, for instruction and on completion *to Camp Meade, Md.*, base hospital, Capt. F. COONLEY, West New Brighton. Neurological Institute, for instruction, Lieut. F. S. PIERSON, Blackwell's Island.

To Otisville, N. Y., from New Haven, Capt. F. A. JOHNSON, New York.

To report to the commanding general, Eastern Department, Capts. G. W. SIMRELL, Brooklyn; L. R. ATKINS, New York.

To Rockefeller Institute, from New Haven, Lieut. S. T. FORTUINE, New York.

To Syracuse, N. Y., Capt. C. S. LITTLE, Thiells. *To examine the command* for nervous and mental diseases, from Camp Shelby, Lieut. H. W. DAVIS, Poughkeepsie.

To Tobyhanna, Pa., as camp surgeon, from Eastern Department, Major J. R. HICKS, Rosebank.

To Washington, D. C., Surgeon-General's Office, from Philadelphia, Capt. C. E. E. PANNACI, Gloversville.

Resignation of Lieut. W. F. WATTON, Brooklyn, accepted.

The following orders have been revoked: *To Camp Wadsworth, S. C.*, from Camp Meade, Lieut. P. J. HIRST, Middle Grove; from Camp Upton, Lieut. M. A. RAMIREZ, New York.

North Carolina

To Camp Custer, Mich., as tuberculosis examiner, from Camp Meade, Capt. T. FRAZER, Asheville.

To Camp Jackson, S. C., from duty as a contract surgeon, Capt. J. R. WILLIAMS, Asheville.

To Camp Sheridan, Ala., Lieut. P. B. HALL, Belmont.
To Fort Oglethorpe for instruction, Lieuts. W. S. CRAWFORD, Bridgewater; J. N. HEGE, Clemons; J. F. FOSTER, Kenly; W. P. SMITH, Midland; from West Point, Miss., Lieut. J. J. BAREFOOT, Graham.
To Hot Springs, N. C., Lieut. W. N. McDUFFIE, Sisco.
To Lakewood, N. J., Capt. T. E. DAVIS, Winston-Salem.
To New Haven, Conn., from Camp A. A. Humphreys, Capt. G. S. MACPHERSON, Highlands.

North Dakota

To Camp Beauregard, La., base hospital, from Camp Pike, Lieut. F. I. DARROW, Fargo.
To Camp Custer, Mich., base hospital, Lieut. R. A. SCOTT, Crystal.
To Camp Dodge, Iowa, Capt. J. A. CARTER, Warwick.
To Fort Riley for instruction, Lieut. O. T. BENSON, Glen Ullin.
To Hoboken, N. J., from Camp Wadsworth, Capt. J. P. AYLEN, Fargo; from Fort Oglethorpe, Lieut. W. L. COWPER, Michigan.
Honorably discharged on account of physical disability incurred in line of duty, Capt. G. A. CARPENTER, Fargo.

Ohio

To Camp Beauregard, La., base hospital, Capt. H. S. MAXWELL, Lisbon; from Camp Sherman, Capt. G. F. GLASS, Cleveland.
To Camp Cody, N. M., base hospital, Capt. W. F. LAUTERBACH, Dayton; Lieut. M. H. SHIPLEY, Cleveland.
To Camp Greene, N. C., with the board examining the troops for tuberculosis, from Camp Hancock, Lieut. C. R. DEEDS, Dalton.
To Camp Hancock, Ga., Capts. R. H. SMITH, Lancaster; J. C. McGINNIS, Martin Ferry; J. D. KNOX, Niles; Lieut. J. F. DECOURSEY, Cincinnati; from Camp Upton, Lieut. E. C. GOLDCAMP, Youngstown; from Williamsbridge, Lieut. F. L. RHODES, Toledo. Base hospital, from Camp Grant, Capt. L. C. GROSH, Toledo.
To Camp Joseph E. Johnston, Fla., from Fort Oglethorpe, Capt. L. B. GOODYEAR, Toledo; Lieut. J. H. POULTON, Springfield.
To Camp McClellan, Ala., from Walter Reed General Hospital, Major D. M. ROBERTS, New Richmond.
To Camp Sheridan, Ala., Lieuts. E. T. ROBINSON, Cleveland; C. R. KITSMILLER, Fresno.
To Camp Upton, N. Y., as orthopedic surgeon, and on completion *to Boston, Mass.*, Harvard Graduate School of Medicine, for instruction, from Fort Oglethorpe, Lieut. L. W. KRAUSS, Cleveland.
To Camp Wheeler, Ga., from Camp Cody, Lieut. V. J. FRUTH, Fostoria; from Camp Devens, Lieut. R. J. GIESELER, Cincinnati.
To Camp Zachary Taylor, Ky., Capt. E. C. COWLES, Cleveland; Lieut. L. F. PERFUS, Salem.
To Cincinnati, Ohio, to examine enlisted men, Capt. A. E. OSMOND, Cincinnati.
To Fort Oglethorpe for instruction, Capts. S. B. McMASTER, Akron; J. MACLACHLAN, Cleveland; E. W. SHANK, Dayton; G. H. IRVIN, Orville; C. L. JONES, Springfield; R. C. CHAMBERLAIN, W. K. CHAMBERLIN, Tiffin; H. J. MORGAN, Toledo; Lieuts. J. O. STOUT, Ashville; J. L. SADDLER, Bay Village; E. I. FOGEL, S. WOLF, Cincinnati; G. S. WILCOX, Columbus, Grove; H. H. WEBSTER, Dayton; C. E. HOLZER, Gallipolis; H. H. LOWE, Leesburg; J. W. JOLLEY, Morral; E. A. POWELL, North Baltimore; L. W. NORMAN, St. Paris; J. F. BEERMAN, E. M. COLLIER, J. F. WRIGHT, Toledo; D. H. MOORE, Urbana; R. K. FINLEY, Xenia; T. H. LAUTENSCHLAGER, Youngstown.
To Fort Omaha, Neb., from Fort Wayne, Lieut. M. L. SMITH, Urbana.
To Fort Riley, Capt. J. FAUSTER, Paulding; Lieuts. J. H. RALSTON, Bedford; E. C. NOHLS, South Charleston.
To New Haven, Conn., Yale Army Laboratory School, for instruction, Capt. C. W. THOMPSON, Cleveland.
To New York, from Columbus, Ohio, Capt. F. E. CUTLER, Cleveland.
To Otisville, N. Y., from New Haven, Lieut. W. F. BAY, Columbus.
To report to the commanding general, Central Department, Capt. F. C. LEE, Cleveland.
To Walter Reed General Hospital, from Fort Oglethorpe, Lieut. B. JOHNS, Cincinnati.
Honorably discharged on account of physical disability existing prior to entrance in the service, Lieuts. R. R. SATTLER, Cincinnati; T. F. HIGGINS, Toledo.
The following orders have been revoked: *To Camp Dix, N. J.*, base hospital, Capt. D. C. HOUSER, Urbana. *To Cleveland, Ohio*, Lieut. R. G. PEARCE, Cleveland.

Oklahoma

To Camp Cody, N. M., Capt. J. R. PHELAN, Oklahoma City.
To Camp Crane, Pa., from Camp Pike, Lieut. J. J. GABLE, Norman.
To Camp Custer, Mich., base hospital, from Camp Pike, Lieut. R. G. SHERWOOD, Ochelata.
To Camp Dodge, Iowa, Capt. J. S. LITTLE, Minco. Base hospital, from Fort Oglethorpe, Lieut. J. B. SHANNON, Pauls Valley.
To Camp Jackson, S. C., base hospital, from Fort Oglethorpe, Lieut. S. B. JONES, Sallisaw.
To Camp Pike, Ark., base hospital, Lieut. H. D. BOSWELL, Henryetta.
To Camp Shelby, Miss., base hospital, Capt. R. E. RUNKLE, El Reno.
To Camp Sheridan, Ala., from Fort Logan H. Roots, Major F. H. CLARK, El Reno.
To Fort Howard, Md., from New York, Major R. L. KURTZ, Nowata.
To Fort Riley, Capt. J. E. HUGHES, Shawnee; Lieuts. W. A. MORELAND, Idabel; S. A. McKEEL, Sallisaw; J. R. SWANK, St. Enid. Base hospital, Lieut. W. W. WELLS, Oklahoma City. For instruction, Lieut. W. A. HOWARD, Chelsea.
To New Haven, Conn., Yale Army Laboratory School, for instruction, Capt. J. E. HUGHES, Shawnee.
To report to the commanding general, Southern Department, Lieut. J. T. MILLS, Allen.
To Waco, Texas, Rich Field, from Mineola, Lieut. W. B. NEWELL, Hunter.
Honorably discharged, Lieut. G. M. COMBEST, Lamar. On account of physical disability existing prior to entrance into the service, Lieut. S. N. STONE, Edmond.

Oregon

To Army Medical School for instruction, and on completion *to Boston, Mass.*, Harvard Graduate School of Medicine, for further instruction, from Fort Oglethorpe, Capt. C. J. McCUSKER, Portland.
To Fort Oglethorpe for instruction, Capt. H. G. PARKER, Portland.
To Vancouver Barracks, Wash., as post surgeon, from San Francisco, Major E. C. DALTON, Portland.
The following order has been revoked: *To Camp Grant*, from Fort Riley, Capt. B. F. SCAIEFE, Eugene.

Pennsylvania

To Ann Arbor, Mich., State Psychopathic Hospital, for intensive training, from Camp A. A. Humphreys, Lieut. J. M. MIRMAN, Philadelphia; from Washington, Lieuts. J. P. BOYLE, Philadelphia; W. L. HAIR, Roaring Springs.
To Baltimore, Md., Johns Hopkins Hospital, Lieut. E. P. DICKINSON, St. Michael.
To Camp A. A. Humphreys, Va., base hospital, Lieuts. C. A. GUNDY, Lewisburg; E. T. JONES, St. Clair.
To Camp Beauregard, La., base hospital, from Fort Oglethorpe, Lieut. W. V. COYLE, Philadelphia.
To Camp Crane, Pa., from Camp Devens, Lieut. H. F. MOFFITT, Pittsburgh; from Camp Meade, Capt. S. R. SKILLERN, Lieut. E. S. DILLON, Philadelphia.
To Camp Custer, Mich., Capt. T. BAKER, Pittsburgh.
To Camp Dix, N. J., Lieuts. J. E. WILSON, Canonsburg; L. J. LANX, Sayre.
To Camp Dodge, Iowa, base hospital, from Fort Sill, Major C. A. E. CODMAN, Philadelphia.
To Camp Forrest, Ga., from Fort Oglethorpe, Lieuts. H. P. SMITH, L. L. STEPP, Pittsburgh.
To Camp Gordon, Ga., base hospital, from Fort Oglethorpe, Lieuts. R. E. PILGRIM, Chester; J. H. READING, JR., Philadelphia.
To Camp Greene, N. C., Capts. G. W. FARQUHAR, Belleville; G. D. MERVINE, Bitumen; Lieuts. C. H. METZGER, Altocha; T. L. SISNEY, Boyers; J. L. RICHARDS, Philadelphia; T. A. MONAHAN, Shenandoah; from Camp Wadsworth, Major H. T. PRICE, Pittsburgh. Base hospital, from Walter Reed General Hospital, Lieut. H. A. WICK, New Bethlehem.
To Camp Hancock, Ga., from Williamsbridge, Lieut. B. H. GUISTWHITE, Philadelphia. Base hospital, Lieuts. W. H. KELSEA, McDonald; M. B. MAGOFFIN, Mercer; R. W. JOHNSTONE, Selinsgrove; R. B. McCAY, Sunbury.
To Camp Holabird, Md., from Camp MacArthur, Lieut. J. H. MOSS, Archibald.
To Camp Jackson, S. C., base hospital, from Fort Oglethorpe, Capt. W. R. SHOEMAKER, Wilmerding.
To Camp Joseph E. Johnston, Fla., Capt. J. V. HARSHA, Carrick.
To Camp Lee, Va., from Willoughby, Ohio, Lieut. M. M. WOLFE, New Kensington.
To Camp McClellan, Ala., from Camp Joseph E. Johnston, Lieut. W. E. ANDREW, Pen Argyle; from Walter Reed General Hospital, Capt. C. H. INGRAM, Pittsburgh.
To Camp Meade, Md., from Fort McHenry, Capt. E. PAINE, Clifton Heights; Lieuts. W. L. SNYDER, Brookville; A. D. FERGUSON, Eddystone; L. J. DEAMY, Philadelphia.
To Camp Sheridan, Ala., base hospital, from Camp Dix, Lieut. L. S. DUNN, Chester.
To Camp Sherman, Ohio, from Camp Wheeler, Capt. H. B. PATTERSON, Pittsburgh; Lieut. G. H. BLOOM, Philadelphia. Base hospital, Capt. I. OHLMAN, Pittsburgh.
To Camp Upton, N. Y., as orthopedic surgeon, and on completion *to Boston, Mass.*, Harvard Graduate School of Medicine, for instruction, from Fort Oglethorpe, Capt. R. P. SMITH, Port Loudon. With the board examining the command for cardiovascular diseases, from Lakewood, N. J., Lieut. W. D. STROUD, Philadelphia.
To Camp Zachary Taylor, Ky., Lieuts. J. J. QUINN, Lansford; J. J. PRICE, Olyphant; J. L. FLANIGAN, Silver Creek. Base hospital, from Camp Hancock, Capt. C. M. ISEMAN, Ellwood City; from Camp Meade, Lieuts. A. I. BARON, Philadelphia; C. F. BIGONEY, Pittsburgh.
To Fort Benjamin Harrison, base hospital, from Fort Oglethorpe, Lieut. J. R. SWARTZLANDER, Doylestown.
To Fort Oglethorpe for instruction, Capts. G. W. FARQUHAR, Belleville; G. D. MERVINE, Bitumen; W. F. COPE, Easton; E. L. ERHARD, Glassport; R. L. ERTSMAN, Pittsburgh; Lieuts. C. H. METZER, Altocha; T. L. SISNEY, Royers; T. H. HARTER, East Brady; J. J. SWEENEY, Heckschersville; J. D. KEIPER, Johnstown; B. S. KOFFORD, Oil City; S. BARON, J. C. HARTMAN, F. R. McDONALD, J. L. RICHARDS, Philadelphia; T. A. MONAHAN, Shenandoah; G. C. GLENN, State College; C. W. BEALS, St. Petersburg; J. G. LOGUE, Williamsport; from Camp Wheeler, Capt. V. J. FENERTY, Philadelphia.
To Fort Ontario, N. Y., Lieut. D. R. EVANS, Pittsburgh.
To Hoboken, N. J., from Camp Greene, Capt. W. P. EVANS, Middletown; from Camp Jackson, Lieut. A. W. FISHER, Fountain Springs; from Camp Sherman, Capt. J. H. BARACH, Lieut. R. M. COCHRANE, Pittsburgh.
To New Haven, Conn., Capt. S. A. LOWENBERG, Philadelphia. *To Yale Army Laboratory School*, for instruction, Lieut. H. A. KIPP, Pittsburgh.
To New York City, Neurological Institute, for instruction, Capt. R. J. BEHAM, Pittsburgh. For intensive training, Lieut. C. D. FOX, Cynwyd.
To Philadelphia, from duty as a contract surgeon, Capt. W. G. RAMSEY, Philadelphia.
To report to the commanding general, Eastern Department, Capts. A. H. ELLIOTT, Avalon; G. J. VAN VECHTON, Scranton.
To Washington, D. C., from Fort Oglethorpe, Lieut. C. S. MILLER, Philadelphia.
The following orders have been revoked: *To Fort Myer, Va.*, from Pittsburgh, Capt. G. B. MORELAND, Edgewood. *To Fort Oglethorpe*, from West LaFayette, Capt. H. BRADY, Grays Landing.

Porto Rico

To Camp Las Casas, P. R., Lieuts. A. J. CASANOVA, Penuelas; F. J. CAPO, JR., Santurce; from Fort Oglethorpe, Lieut, M. B. CABALLERO, Humacao.

Rhode Island

To Camp Meade, from Fort McHenry, Capt. J. B. FERGUSON, Providence. Base hospital, Lieut. F. A. COUGHLIN, Providence.
To Fort Oglethorpe for instruction, Lieut. W. W. STREET, Providence.

South Carolina

To Camp Crane, Pa., from Camp Zachary Taylor, Capt. J. WALLACE, Easley.

To Camp Joseph E. Johnston, Fla., from Fort Oglethorpe, Lieut. C. J. MILLER, Cottageville.
To Camp Newton D. Baker, Texas., base hospital, from Camp Gordon, Lieut. A. S. BLANCHARD, Williston.
To Camp Zachary Taylor, Ky., Lieut. R. B. DAY, Pendleton. Base hospital, Lieut. H. C. RAYSOR, St. Matthews.
To Fort Banks, Mass., from Camp Greene, Lieut. W. B. BAKER, Hemingway.
To Fort Benjamin Harrison, base hospital, from Fort Oglethorpe, Lieut. W. T. GIBSON, Batesburg.
To Fort Oglethorpe for instruction, Lieuts. F. H. BOLD, H. DEAS, Charleston; J. B. CASH, Chesnee; B. T. SHARPTON, Clarks Hill; C. H. BLAKE, F. M. ROUTH, W. P. TURNER, Greenwood; F. L. MARTIN, Mullins.
To Fort Sheridan, Ill., base hospital, from Fort Oglethorpe, Capt. J. L. BOLT, Easley.
To San Francisco, Calif., from Camp Sevier, Lieut.-Col. THOMAS E. SCOTT.

South Dakota

To Camp Dodge, Iowa, Lieut. A. S. JACKSON, Lead.
To Fort Oglethorpe for instruction, Lieut. B. C. MURDY, Aberdeen.

Tennessee

To Ann Arbor, Mich., State Psychopathic Hospital, for intensive training, from Washington, Lieut. P. J. TRENTZSCH, Rives.
To Baltimore, Johns Hopkins Hospital, for instruction, from Fort Oglethorpe, Lieut. J. C. BLANKENSHIP, Halls.
To Camp Hancock, Ga., Capt. J. E. JETER, Gleason.
To Camp Sheridan, Ala., Lieut. E. M. CULP, Clifton. On completion *to Camp Shelby, Miss.*, Capt. A. J. READ, Chattanooga.
To Camp Zachary Taylor, Ky., Capt. S. M. GLASGOW, Nashville; Lieut. J. S. BEASLEY, Centreville.
To Fort Benjamin Harrison, base hospital, from Camp Pike, Capt. W. E. HOWELL, Morristown.
To Fort Oglethorpe for instruction, Major J. L. ANDREWS, Lieuts. C. M. CHILTON, H. P. CONLEY, Memphis; M. D. DAVIS, St. Elmo.
To Fort Omaha, Neb., from Fairfield, Capt. G. E. CAMPBELL, Elizabethton.
To Hoboken, N. J., from Camp Lee, Lieut. C. COLLIER, Memphis; from Camp McClellan, Lieut. R. L. MOTLEY, JR., Dyersburg; from Camp Sherman, Lieut. J. H. HITE, Nashville.
To Whipple Barracks, Ariz., from New Haven, Capt. L. SHUMACKER, Chattanooga.
The following order has been revoked: *To Fort Ontario*, base hospital, Lieut. O. M. LATEN, Memphis.

Texas

To Ann Arbor, Mich., State Psychopathic Hospital, for intensive training, from Fort Riley, Lieut. R. A. THARP, Austin.
To Baltimore, Johns Hopkins Hospital, for instruction, from Fort Oglethorpe, Lieut. M. H. GLOVER, Wichita Falls.
To Camp Bowie, Texas, base hospital, Capt. C. D. DIXON, San Antonio.
To Camp Crane, Pa., from Fort Oglethorpe, Lieut. H. U. WOOLSEY, Terrell.
To Camp Devens, Mass., as orthopedic surgeon and on completion *to Boston*, Harvard Graduate School of Medicine, for instruction, from Fort Oglethorpe, Lieut. H. CLAY, Dallas.
To Camp Forrest, Ga., from Camp Jackson, Lieut. J. C. MAY, Fort Worth.
To Camp Gordon, Ga., as orthopedic surgeon, and on completion *to Boston*, Harvard Graduate School of Medicine, for instruction, from Fort Oglethorpe, Lieut. H. K. MORRISON, Houston.
To Camp Hancock, Ga., Capt. O. C. BOWMER, Corsicana.
To Camp John Wise, Texas, from Camp Kelly, Capt. T. F. BRYAN, Dublin.
To Camp Joseph E. Johnston, Fla., from Fort Oglethorpe, Capt. J. B. SWENGER, Beaumont.
To Camp MacArthur, Texas, Lieut. J. E. HAMMOND, Munday. As assistant to camp surgeon, from Marfa, Major G. S. MURPHY, Amarillo.
To Camp Pike, Ark., base hospital, Lieut. H. DONALD, Dallas. To examine the command for nervous and mental diseases, Lieut. F. O. CALAWAY, Austin.
To Camp Sheridan, Ala., Lieuts. A. G. BLANTON, Bronte; E. J. IRVINE, Dallas.
To Camp Sherman, Ohio, base hospital, from Fort Oglethorpe, Lieut. F. L. ROBBINS, Houston.
To Camp Travis, Texas, base hospital, Capt. H. H. STARK, El Paso.
To Camp Wheeler, Ga., from Camp Cody, Lieut. J. V. DOZIER, Menard.
To Camp Zachary Taylor, Ky., Capt. H. O. BRANNON, Fort Worth.
To Fort Benjamin Harrison, from Fort Bliss, Capt. W. C. BROWNE, Midlothian.
To Fort Oglethorpe for instruction, Capts. G. W. DAWSON, F. A. PIERCE, Dallas; C. P. COOK, Ennis; E. GRAVES, Gatesville; S. B. HUDSON, Habinal; H. F. BLAILOCK, W. P. CONNELLY, McGregor; A. M. McELHANNON, Sherman; J. E. MANNEY, Waco; Lieuts. C. C. NEVILL, Bonham; N. SNYDER, Brownwood; E. L. HAILEY, Colina; O. H. TALLEY, El Paso; W. S. LORIMER, Hanley; T. D. HOLDER, Holder; W. M. MOORE, Jonesboro; J. A. MOORE, Jourdanton; F. B. SEWALL, Marlin; A. C. ROGERS, Odell; T. S. BARKLEY, Rockdale; W. R. MOORE, Spur; E. W. WRIGHT, Sunset; J. E. KING, Throckmorton; T. A. KING, Vernon; F. J. STANISLAV, Waco; C. G. PRICE, Winden.
To Fort Omaha, Neb., from Fairfield, Lieut. C. B. JONES, Quanah.
To Fort Riley, Lieuts. C. T. STEEN, Damson; J. D. SPEAR, Dayton.
To Governors Island, N. Y., from Camp MacArthur, Major S. NORMAN, Texas City.
To Hoboken, N. J., from Camp Jackson, Lieut. E. B. JONES, Jacksonville; from Millington, Lieut. E. L. SHARP, Willis.
To Marfa, Texas, Capt. M. H. BOWMAN, Fort Bliss.
To New Haven, Conn., from Camp Grant, Capt. J. T. BERNARD, Dallas; from Camp MacArthur, Major I. S. KAHN, San Antonio. Yale Army Laboratory School, for instruction, Capt. H. B. KINGSBURY, Fort Worth.
To Otisville, N. Y., from New Haven, Lieut. J. A. BRADBROOK, Asherton.
To report to the commanding general, Southern Department, Capt. A. A. CALDWELL, Amarillo.
To Rockefeller Institute for instruction and on completion *to his proper station*, from Camp Logan, Capt. W. F. McMANUS, San Antonio.
To Whipple Barracks, Ariz., from Camp MacArthur, Capt. M. F. BLEDSOE, Port Arthur.
To Wichita Falls, Texas, Capt. H. J. ROGAR, Vernon.
Honorably discharged on account of physical disability existing prior to entrance into the service, Capt. W. E. BROWN, Abilene.
The following order has been revoked: *To Camp A. A. Humphreys*, from Eastern Department, Lieut. R. ATKINSON, Pleasanton.

Utah

To Fort McHenry, Md., from Fort Oglethorpe, Lieut. F. A. GOELTZ, Salt Lake City.
To Fort Riley, Capts. A. L. CURTIS, Payson; T. H. WHEELER, Salt Lake City; Lieut. R. M. BRUCKHEIMER, Salt Lake City. Base hospital, F. F. HATCH, Salt Lake City. For instruction, Lieut. J. W. NIXON, Brigham City.

Vermont

To Ann Arbor, Mich., State Psychopathic Hospital, for intensive training, Capt. E. O. CROSSMAN, Burlington.
To Camp Crane, Pa., from Camp Hancock, Lieut. H. H. LAWRENCE, Springfield.
To Camp Jackson, S. C., base hospital, from Camp Joseph E. Johnston, Capt. A. D. FINLAYSON, Burlington.
To Hoboken, N. J., from Camp Devens, Capt. B. D. ADAMS, Burlington.

Virginia

To Camp Greene, N. C., from Camp Sevier, Capt. I. HURST, Parksley.
To Camp Meade, Md., from Fort McHenry, Lieut. J. O. MUNDY, JR., Raccoon Ford.
To Camp Pike, Ark., as assistant to camp surgeon, Capt. E. C. LEVY, Richmond.
To Camp Sevier, S. C., base hospital, from Fort Oglethorpe, Lieut. J. W. JORDAN, Ashland.
To Fort Oglethorpe for instruction, Lieuts. J. B. LACY, Nathalie; L. N. SMERNOFF, Newport News.
To New Haven, Conn., Lieut. W. E. BROWN, Catawba Sanitarium.
To Otisville, N. Y., from New Haven, Capt. A. G. FRANKLIN, JR., Richmond.
To Washington, D. C., from Walter Reed General Hospital, Lieut. O. A. RYDER, Cambria.

Washington

To Camp Lewis, Wash., Lieut. R. L. BEADLES, Seattle. Base hospital, Capts. O. TAYLOR, Kent; H. G. LAZELLE, Lieut. S. ROGERS, Seattle; from Camp Meade, Capt. W. D. READ, Tacoma.
To Fort Riley for instruction, Capt. J. W. HEWETSON, Taylor; Lieut. J. F. STEBLE, Olympia.
The following order has been revoked: *To Rochester, Minn.*, Mayo Clinic, for instruction, and on completion *to his proper station*, Capt. J. M. HENDERSON, Seattle.

West Virginia

To Camp Beauregard, La., base hospital, from Fort Oglethorpe, Lieut. J. B. PAYNE, Clarksburg.
To Camp Joseph E. Johnston, Fla., from Fort Oglethorpe, Capt. M. V. GODBEY, Charleston.
To Camp Meade, Md., base hospital, Capt. G. YOST, Huntington.
To Camp Shelby, Miss., base hospital, from Camp Upton, Capt. C. W. HALTERMAN, Weston.
To Fort Myer, Va., Capt. J. B. KIRK, Bluefield.
To Fort Oglethorpe, from Camp Wheeler, Lieut. J. C. FORD, Hansford. For instruction, Lieuts. B. H. SWINT, Charleston; R. W. FISHER, Morgantown; H. M. BANKS, Shepardstown; H. L. CASTO, Spencer.
To Fort Sheridan, Ill., base hospital, from Fort Oglethorpe, Capt. E. E. SHAFER, Huntington.
To Hampton, Va., Lieut. W. B. RICHARDSON, Parkersburg.
To Hoboken, N. J., from Camp Sherman, Lieut. W. E. MASTERS, Wheeling.
To Kingsport, Tenn., from Camp Leach, Lieut. S. W. BULL, Spencer.

Wisconsin

To Camp Crane, Pa., from Camp Custer, Capt. H. S. ROBY, Milwaukee.
To Camp Dodge, Iowa, Capt. W. L. STEPHENSON, Ladysmith.
To Camp MacArthur, Texas, Lieut. W. T. McNAUGHTON, Milwaukee.
To Camp Meade, Md., from Fort McHenry, Lieut. E. R. F. MURPHY, Antigo.
To Camp Wheeler, Ga., from Camp Cody, Capt. J. S. FOAT, Ripon.
To Fort Benjamin Harrison, base hospital, from Fort Oglethorpe, Lieut. J. ANDERSON, Racine.
To Fort Oglethorpe for instruction, Capts. N. ANDREWS, Oshkosh; A. O. SANDERS, Superior.
To Fort Riley for instruction, Capts. W. O. SEEMAN, Eau Claire; D. G. HARRISON, Mason; E. F. BICKEL, Oshkosh; N. A. PETERSON, Soldier's Grove; Lieuts. J. J. MALCOLM, Chetek; W. A. MUNN, Janesville; W. W. COON, Milton Junction; O. T. GUNTHER, Sheboygan; R. F. FITCH, Tomah.
To New Haven, Conn., Lieut. L. F. RUSCHHAUPT, Milwaukee.
To Newport News, Va., from Camp Meade, Lieut. C. C. LOWLEY, Winnebago.
To report to the commanding general, Central Department, Capts. J. C. ELSOM, Madison; L. L. TAYLOR, Waupun.

Wyoming

To Camp Cody, N. M., Lieut. A. P. THOMPSON, Evanston.
To Camp Custer, Mich., base hospital, Capt. C. E. HARRIS, Basin.
To Camp Fremont, Calif., base hospital, Capt. A. H. COOPER, Lander.
To Fort Oglethorpe for instruction, Capt. A. B. TONKIN, Riverton.
To Fort Riley for instruction, Lieut. D. H. DALE, Lusk.
To Wichita Falls, Texas, Call Field, from Camp Dick, Lieut. J. T. McBRIDE, Dayton.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST; SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

COLORADO

Personal.—Dr. John F. McConnell, Colorado Springs, was elected president and Dr. George B. Gilbert, vice president, and Dr. Harry C. Goodson, secretary, of the Solly Tuberculosis Society, Colorado Springs, August 19.——Dr. Benjamin B. Frankle has been appointed police surgeon of Denver, succeeding Dr. Samuel S. Goldhammer, resigned to enter military service.——Dr. Haskell M. A. Cohn, Denver, sustained fractures of the shoulder and two ribs in a collision between his automobile and another car, 8 miles north of Colorado Springs.——Dr. A. J. Monahan, Pueblo, has been appointed a member of the state board of health.

CONNECTICUT

Laboratory Building for Medical School.—Plans have been prepared for a laboratory building for the Yale Medical School, New Haven. The building is to be of brick and steel construction.

Physician's Bail Forfeited.—Dr. Francisco D'Agostina, New Haven, arrested, August 15, on the charge of improper treatment of his 15-year-old ward, and released on bonds of $5,000, is said to have failed to appear in court and his bonds were forfeited.

Tuberculosis Propaganda.—The state department of health is distributing throughout the state a new pamphlet entitled, "Tuberculosis: Prevention and Treatment," the object of which is to convey concisely the more important facts concerning tuberculosis of the lungs.

Personal.—Dr. David R. Lyman, Wallingford, has resigned as state tuberculosis commissioner and Arthur R. Kimball, president of the Waterbury Anti-Tuberculosis League, has been appointed to succeed him.——Dr. Nathaniel C. Rubinsky, New Haven, was ship surgeon on the U. S. Transport *Covington*, which was sunk at sea, August 5.——Dr. Robert C. White, Willimantic, was operated on for appendicitis at St. Joseph Hospital, Willimantic, recently, and is said to be doing well.

ILLINOIS

Service Flag Dedicated.—St. Joseph's Hospital, Chicago, dedicated a service flag bearing thirty stars, August 13, indicating that thirty nurses of that hospital were now engaged in war work.

Offenders Against Law.—Mrs. W. M. Rybicki, charged by the state board of health with the violation of the medical practice act, pleaded guilty and was fined $50 and costs in each of two counts.——Dr. K. S. Ramashauski, Chicago, charged with practicing medicine without a license, is said to have been found guilty, and fined $50 and costs, August 12.

Contagious Diseases.—The Illinois health record for the week ended August 12 shows ninety cases of diphtheria, twenty-seven of scarlet fever, nineteen of smallpox, three of meningitis and eighteen of infantile paralysis. All cases of infantile paralysis were reported from the northern part of the state, and Chicago has the majority of cases of diphtheria, smallpox and scarlet fever.

Personal.—Major William Fuller, M. C., U. S. Army, who is chief of the surgical service at U. S. Hospital No. 1, Williamsbridge, N. Y., was operated on in St. Luke's Hospital, August 20, and is reported to be convalescing.——Drs. Mary M. S. Johnstone and Loretta K. Maher, Chicago, have been made contract surgeons of the United States Army, and have been appointed on the staff of the emergency dispensary in Washington.——Dr. G. Willard of Chicago was struck by a street car, August 7, and suffered a fracture of the skull.

MARYLAND

Personal.—Dr. Richard T. Hardy, Baltimore, has been made medical superintendent of the Sydenham Hospital, Baltimore, to succeed Dr. Harry G. Johnson, who has resigned to enter the military service.——Dr. and Mrs. Philip S. Evans, Baltimore, have returned to China after a year in the home country.——Dr. William Dew has been appointed supervisor of pasteurization in the health department of Baltimore.

MICHIGAN

Physicians Exchange Dissolves.—Petition has been made to the circuit court by the Physicians and Surgeons Exchange, Detroit, for the dissolution of the organization, as the listed liabilities are said considerably to exceed the assets.

Business Men Help Sanatorium.—On account of the number of physicians of Mount Clemens who have left to enter the military service, Dr. Joseph M. Croman is contemplating closing the institution and remodeling it as an apartment house. As this would leave the city without a hospital, the business men have raised a bonus of $1,000 to keep the institution open for two years.

Personal.—The governor is said to have demanded the resignation of William D. Farley, Battle Creek, as a member of the state board of health. It is charged that Farley, who is engaged in the underaking and furniture business, sold supplies to the state board of health. He denies that he had any intention of violating the law.——Dr. Benjamin T. Phillips, Menominee, is reported to be seriously ill at his home.

MINNESOTA

Personal.—Dr. Lloyd G. Dack has been appointed local surgeon for the Minneapolis, St. Paul and Sault Sainte Marie Railway at Brooten.

Infantile Paralysis.—Several cases of infantile paralysis were reported from Spring Grove with three deaths, and a specialist from Minneapolis has been sent to invesigate the situation.

Trachoma Institutions.—Free dispensaries for the treatment of Indians and others suffering from trachoma are expected to be established throughout the state. The investigation of the institution is in the hands of Surg. John McMullen, U. S. Public Health Service.

NEW JERSEY

Personal.—Watson Martindale, a member of the Johns Hopkins University Hospital Unit and son of Dr. J. Watson Martindale of Camden, is under treatment in a Paris Hospital, having had his right hand shattered by a German shell at the beginning of the great Allied offensive.——Mr. Charles H. Wells, Montclair, began his work as state commissioner of health, August 15.

Medical Board Changes.—Dr. James W. Hughes, Atlantic City, has been appointed a member of the state board of medical examiners to succeed Dr. Edward H. Baldwin, Newark. Dr. John J. Mooney, Jersey City, has been reappointed a member of the board and Dr. Philip Marvel, Atlantic City, has been appointed a member of the board to succeed Dr. Alexander Marcy, Jr., Riverton.

NEW YORK

Use of Saccharin.—Several years ago, the federal government ruled that saccharin was a deleterious product, and could not be used in foods except when intended for medicinal purposes—that is, diabetic foods—in which instance its use should not exceed 0.03 gm. per day. During the recent weeks, the sugar shortage has become more and more acute and the temptation to use saccharin as a sweetening agent has consequently become greater at this time. In a ruling on the adulteration of a beverage which contained 0.01 per cent. saccharin, the Appellate Division of the Supreme Court of New York held that the use of saccharin, if fully disclosed on the label, did not constitute adulteration within the meaning of the Sanitary Code of New York. This judge, however, went further and stated that "since saccharin is not injurious to health, its use may be restricted, but cannot be prohibited in the exercise of police power."

New York City

Nurses' Psychiatric Unit Ready to Sail.—The Nurses' Bureau of the New York County Chapter of the American Red Cross is making a vigorous effort to enlist for war service every graduate nurse in New York City who can be spared from civilian service, and in connection with this campaign the bureau announces that a special psychiatric unit of forty nurses has been assembled and outfitted, and will soon sail for overseas for the purpose of ministering to shell shocked soldiers.

Personal.—Dr. Frank J. Monaghan, Brooklyn, secretary of the department of health, has been appointed deputy health commissioner in charge of the Brooklyn office, succeeding

Dr. B. Frank Knause, who has resigned to enter the military service.——Lucius Brown, director of the Bureau of Food and Drugs of the New York Department of Health, who was suspended, May 28, was unanimously reinstated by the board of health, August 10.——Dr. Justinian A. Hofheimer, while performing an operation at Hill's Sanitarium in this city, August 19, was stricken with heart disease and had to be removed to his home, where, it was stated, he was in a serious condition.

Not Spanish Influenza.—A statement has been given out by Commissioner Copeland in which he says that researches made by experts in the health department show that of the cases of illness taken from steamships arriving in this port supposed to be Spanish influenza, very few showed symptoms of that affection. Eleven patients taken from one vessel were found to be suffering from pneumonia and bronchial trouble. It is believed that owing to the exigencies of submarine warfare, passengers contract heavy colds and later pneumonia as the result of passing through the semiarctic waters of the north, and later are affected with heat prostration and stomach disorders when they come through the gulf stream farther south. Health officers of the port, however, are keeping a strict lookout on incoming steamships whose passengers or crews might develop Spanish influenza.

NORTH CAROLINA

Prosecution for Violation of the State Quarantine Law.—During the month of July the state board of health prosecuted twenty physicians for violating the state quarantine law. Two charges were brought against one physician. One defendant was found not guilty, and convictions were obtained and fines were imposed ranging from $1 to $15. In each case the charge against the physician was failure to comply with the state quarantine law that requires the prompt reporting to the county quarantine officers of infectious or contagious diseases.

Hospitals in Western North Carolina.—Western North Carolina is being recognized by the federal government liberally in the location of the various hospitals recently established. An Army hospital has been established for reconstruction purposes at the Hotel Kenilworth, which was completed last year by private persons. The new U. S. Hospital at Azelea, 4 miles south of Asheville, will soon be able to care for 200 tuberculous soldiers; the U. S. Hospital at Waynesville, N. C., 28 miles away, cares for about 800 soldiers, while the internment camp for Germans at Hot Springs, N. C., 30 miles from Asheville, will shortly be converted into a hospital with accommodations for 2,000 soldiers.

Postgraduate Courses for Health Officers.—The North Carolina State Sanatorium, with the cooperation of the International Health Board, has arranged a special postgraduate course in physical diagnosis for health officers and other physicians. While special stress has been laid on tuberculosis, the course will be of such a general nature as to make it of value to the practitioner. The course will include: history taking; complete physical examination; tuberculin, the von Pirquet test and subcutaneous test and treatment; blood pressure; throat; a unit of tuberculosis for a county health department; assistance to be obtained from the sanatorium and the bureau of tuberculosis; laboratory; radiography and electric therapeutics; county sanatoriums; pneumothorax; dairying. Instruction will be given by Drs. Lewis B. McBrayer, Paul P. McCain, Wade H. Sherrill and Miss Mann, all of Sanatorium.

Inspection and Grading of Jails.—The state board of health has recently completed the inspection and grading of one half of the county jails of the state, as provided for in a recent legislative enactment. A tabulation shows that very few of the 100 county jails are maintained regularly according to the standards fixed by the board. Out of a possible 100 points, only two jails scored above 90; nine between 80 and 90; eleven between 80 and 70, while the other twenty-six range rapidly down to the lowest, which is graded at 47. The sanitary requirements of the board are minimal in their exactions, consisting in brief of a physical record of each inmate on entry; separation of races and sexes; segregation of infections, notably tuberculosis and venereal infections; precautions against vermin; ample floor and air space; pure water and bathing facilities; proper clothing and bedding; sanitary disposal of sewage; measures against flies and mosquitoes; and general cleanliness of person and premises. The inspection work will be continued until all counties have been examined and graded.

OREGON

New State Officers.—At the annual meeting of the Oregon State Medical Association held in Seattle, Wash., last month, the following officers were elected: president, Dr. Charles M. Barbee, Portland; vice presidents, Dr. Frank E. Boyden, Pendleton; Louis Buck, Portland, and Benjamin A. Cathey, Condon; secretary, Dr. Andrew J. Browning, Portland; treasurer, Dr. Jesse M. McGavin, Portland; and councilors, Drs. Charles H. Carey, Portland; Joseph A. Pettit, Portland; Francis G. Swedenburg, Ashland; George S. Whiteside, Portland; Robert J. Pilkington, Astoria; Alvin W. Baird, Portland; Mae H. W. Cardwell, Portland; Charles J. Smith, Portland; Paul Rockey, Portland; Roy S. Stearns, Portland, and Roy C. McDaniel, Portland.

PENNSYLVANIA

Philadelphia

To Raise Funds for a Hospital.—With the aid of the woman's auxiliary of the Roosevelt Hospital, to be organized within the next few days, the campaign to raise a fund of $20,000 with which to enlarge the Roosevelt Hospital will be carried into every section of the city and suburbs. Campaign headquarters have been opened at 1341 Chestnut Street and the active work of the campaign will be conducted there. Dr. Franklin Brady, chief of staff, has asked architects to submit plans involving a cost of $200,000 for the new hospital.

RHODE ISLAND

Typhoid in the Pawtuxet Valley.—The state board of health is making a thorough investigation into the reported prevalence of typhoid fever in Pawtuxet Valley. It is believed that the infection was due to a carrier rather than to water pollution.

District Society Meeting.—The Woonsocket District Medical Society, at its annual meeting, reelected Dr. Edward L. Myers, Woonsocket, president, and elected the following new officers: vice presidents, Drs. James A. King and Robert Gates Reed, Woonsocket; secretary, Dr. Edgar F. Hamlin, Slatersville, and treasurer, Dr. Aurelien Constantineau, Woonsocket.

Personal.—Dr. Harry S. Bernton, pathologist to the state board of health, has resigned to become the chief of the bureau of preventable diseases and director of the biologic laboratories of the health department of the District of Columbia. ——Dr. Augustine A. Mann, Central Falls, was reelected president of the First Regiment Rhode Island Cavalry Veteran Association at its annual reunion, August 17.

TEXAS

Personal.—Dr. Herbert F. Gammons, Carlsbad, formerly assistant superintendent of the Texas State Tuberculosis Sanatorium, has been appointed superintendent of the Deerwood Sanatorium, Wadena, Minn., and will also attend to the tuberculosis clinics in Crow Wing and Aitkin counties.——Dr. H. Powell Luckett, Bastrop, was stricken with cerebral hemorrhage recently, and has been obliged to resign as a member of the county registration board.——Dr. Azariah W. Parsons, Devine, has been elected president of the Medina County Medical Society.

CANADA

Personal.—Lieut.-Col. John N. Gunn, D.S.O., Toronto, formerly officer commanding the 8th Field Ambulance in France, has been appointed deputy assistant director of medical services at Calgary, Alberta.——Capt. D. E. Staunton Wishart, Toronto, who has completed three years with the R. A. M. C. in the east, has been gazetted to the staff of No. 4 Hospital at Basingstoke, England.——Dr. Francis J. Shepherd, Montreal, late dean of the medical faculty of McGill University, has just completed an investigation into the prevalence of goiter in Alberta, undertaken at the instance of the Canadian Conservation Commission to which body representations had been made that the disease was unduly prevalent in that province.——Dr. H. A. Stewart, Saskatoon, Sask., has been elected a member of the Senate of the University of Saskatchewan, and will represent the College of Physicians and Surgeons of the province.——Lieut.-Col. Andrew Croil, formerly of Saskatoon, Sask., has been appointed to take charge of the surgery in Camp Hill Military Hospital, Halifax, N. S.——Capt. Charles E. Preston, C. A. M. C., was among those wounded during a German bombing raid on No. 1 Canadian Base Hospital.——Lieut. B.

E. Hawke, formerly of Toronto, has been working in a hospital in Epsom, England. He has recently been appointed examiner of a traveling board with headquarters at Tunbridge Wells.——Major A. S. Gorrell, A.D.M.S., Military District No. 12, Canada, is advanced to the rank of lieutenant-colonel and will be special consultant in diseases of the eye, ear, nose and throat.——Lieut.-Col. Joseph Hayes, who went overseas as medical officer of the 85th Nova Scotia Battalion, has been mentioned in dispatches a second time for distinguished and gallant services.——Capt. Frank Hassard, a graduate of the University of Toronto, won the Military Cross in July and is now attached to the field ambulance of the Indian cavalry.

GENERAL

Personal.—Surg. James A. Nydegger, U. S. P. H. S., was placed in supervisory charge of the quarantine functions of the port of Baltimore, August 1. The Baltimore Quarantine Station was recently transferred from municipal to federal control.

Eye and Ear Meeting.—At the annual meeting of the Pacific Coast Oto-Ophthalmological Society held in Salt Lake City, August 12 and 13, under the presidency of Dr. Alexander R. Irvine, Salt Lake City, Dr. Cullen F. Welty, San Francisco, was elected president, and Dr. Aaron S. Green, San Francisco, secretary. San Francisco was selected as the place of meeting for 1919.

Tri-State Officers.—At the annual meeting of the Tri-State District Medical Association, held in Madison, Wis., August 20 to 22, Rockford, Ill., was selected as the place of meeting for next year. The following officers were elected: honorary president, Dr. James W. Guthrie, Dubuque, Iowa; president, Dr. Lawrence H. Prince, Sparta, Wis., and secretary and treasurer, Dr. Domer G. Smith, Freeport, Ill.

Bequests and Donations.—The following bequests and donations have recently been announced:

The City of Milwaukee, $350,000 for the erection of three free medical dispensaries, by the will of Miss Antoinette E. Keenan.

For a hospital for the white race at Winston-Salem, N. C., $12,000, and an additional $12,000 for provision for negroes of the community by the will of R. K. Reynolds, Winston-Salem.

Polyclinic, American Oncologic, Samaritan, Garretson, American, and Babies' hospitals, Philadelphia, each $1,000, and the ambulance fund $3,000, from the receipts of the Philadelphia Indoor Horse Show.

New Physiologic Journal.—Announcement is made of the forthcoming appearance of the *Journal of General Physiology*, which is intended to serve as an organ for publication for papers devoted to the investigation of life processes from the physicochemical point of view. The journal will be issued bimonthly. The first number will appear September 20. The editors are Dr. Jacques Loeb of the Rockefeller Institute for Medical Research, and Prof. W. J. V. Osterhout of Harvard University. The subscription price is $5 a volume and subscriptions should be sent to the *Journal of General Physiology*, Publication Department, the Rockefeller Institute for Medical Research, Sixty-Sixth Street and Avenue A, New York.

National Safety Council.—The seventh annual safety congress of the National Safety Council will convene at the Hotel Statler, St. Louis, September 16, under the presidency of David Van Schaack, and will remain in session four days. The principal addresses will be delivered by Secretary of the Interior Franklin K. Lane, on "Safety as an Asset in Winning the War," and by Charles M. Schwab, director of the emergency fleet corporation on "The Democratization of Industry." The preliminary program of the meeting shows a very wide range of subjects for discussion, dealing with the fundamental principles of the methods of securing success in safety work and in coordinating the resources of the country for the winning of the world war.

Prohibition of Child Labor. — Congressman Edward Keating of Colorado stands sponsor for a new war measure which will directly prohibit the labor of children of less than 14 years of age at any time, and children between the ages 14 and 16 years for more than eight hours a day, and of children of less than 16 years of age in mines and quarries. The bill seeks to maintain standards during the war by direct prohibition under the war power of Congress. The bill was drawn by Thomas I. Parkinson of the Legislative Drafting Research Fund of Columbia University, and has been approved by a joint committee of the National Child Labor Committee and the American Federation of Labor.

Convention of Sanitarians.—A convention of sanitarians of the United States and Canada will be held in Chicago, October 14 to 17, under the auspices of the American Public Health Association. The convention will consider such questions as "Which Public Health Officer Should Stay at Home and Which Should Go to War?" "How Is the Nation Bearing Up Under the War Strain?" "What Are the Special War-Time Health Menaces of the Civil Population and What Are We Going to Do About Them?" and "What Headway Are We Making Against Venereal Diseases?" Papers will also be presented on laboratory, internal hygiene, vital statistics, food and drug, sanitary engineering, sociologic and general health administration subjects. Among those who are expected to be present and speak at the conference are: Surg.-Gen. William C. Gorgas, U. S. Army; Col. Victor C. Vaughan and Major William H. Welch, M. C., U. S. Army; President George H. Vincent of the Rockefeller Foundation; Dr. Charles J. Hastings, president of the American Public Health Association; Asst.-Surg. Allan J. McLaughlin, U. S. Public Health Service; Drs. Ernest S. Bishop, Lee K. Frankel, Frederick L. Hoffman and others. Governors of states and mayors of cities have been requested to send their health officers to this conference. Further information will be furnished by A. W. Hedrich, secretary of the American Public Health Association, 1041 Boylston Street, Boston.

FOREIGN

Deaths in the Profession Abroad.—E. G. Gereda, a prominent laryngologist of Madrid, founder and director of the new model mountain sanatorium for pulmonary tuberculosis at Guadarrama, the first climatic sanatorium in Spain, injured in a motorcycle accident, aged about 35.——**T. von Speyr** of Chaux-de-Fonds, Switzerland, a well known ophthalmologist, president of the Swiss Ophthalmologic Society and leader in public health matters in his district. He succumbed to perforation of an unsuspected gastric ulcer, aged about 61.

Death of the President of Italian Red Cross.—The death is reported of the Count della Somaglia, senator and president of the Italian Red Cross since early in 1913, aged 50. His father had been president of the Red Cross from 1886 to his death in 1896, and was also senator of the realm. The son took up the task then, serving on the council and later as vice president and president until his recent death. The extensive work of the Italian Red Cross through the Messina earthquake and other catastrophes and during the war has been finely organized and admirably effectual.

SOUTH AND CENTRAL AMERICA, MEXICO AND WEST INDIES

Lying-In Hospital at Havana.—The *Revista de Medicina y Cirugia* of Havana describes the opening of the new Mutualidad Materna del Vedado, founded and managed by Dr. L. Huguet as a modern maternity. It is the first institution of the kind in Cuba exclusively devoted to parturients.

Index of Cuban Medical Literature.—The Medical Press Association of Cuba voted at its regular meeting in July to publish an index of the medical literature of Cuba. The committee appointed for the purpose consists of Drs. Weber, Ruiz Casabo and Arteaga. The latter is editor in chief of the *Revista de Medicina y Cirugia* of Havana. The financial aid of the scientific societies and periodicals of Cuba is to be solicited to cover the expense of this local "Index Medicus."

CORRECTIONS

Conference of Local Board Examiners.—We are informed by Dr. J. W. Elder that Major W. C. Lyle of Georgia held a conference with the chairmen of advisory boards at Fort Oglethorpe, and that this conference was held earlier than the one held by examiners at Camp Cody as described in THE JOURNAL last week.

Studies in Water Drinking.—In the issue of August 24, page 685, appeared an abstract of Dr. A. C. Ivy's article on "Studies in Water Drinking." The last sentence of this item reads: "It was impossible to demonstrate a fatigue of the gastric glands when stimulated by water or by gastrin for a period of ten to twenty-six minutes." This statement should be "for a period of ten to twenty-six hours."

National Dental Association.—In the issue of August 17, in a "General News" item, under the heading "National Dental Association," it was stated that the exhibit of the United States Army Dental School Section was in charge of Lieut. William E. Henshaw, Lieut. C. R. Hollister and Lieut.-Col. J. H. Snapp. This statement was erroneous, as this exhibit was in charge of Lieut.-Col. J. H. Snapp, Major J. D. Eby, Capt. Benjamin B. Todd and Major A. J. T. Beatty.

LONDON LETTER

LONDON, July 30, 1918.

Mr. Hoover on the Food Position

Mr. Herbert Hoover, the food administrator of the United States, who is at present in this country for the Inter-Allied Food Conference, made an important statement on the food position at a luncheon given in his honor by the lord mayor. He said that within four months of the outbreak of war they were startled in America by the fact that 10,000,000 people in Belgium and northern France were in danger of immediate starvation. From that moment his sole occupation had been the study of problems and the actual administration involved in the feeding of masses of human beings. In those early days they regarded the Belgian problem as the greatest problem in food that the world had seen. But they little realized that sooner or later the food supplies of 500,000,000 people would be endangered and that the economic disturbances arising would penetrate into every quarter of the globe. The development of this titanic struggle to a point at which practically one third of the man power of the white races would be called out for warfare could have but one result on food production. Furthermore, the naval struggle to cut off or reduce the food supply of ourselves or the enemy had become one of the primary strategies in the war. The enemy had rendered our food problem complex and difficult by the destruction of shipping and the partial isolation of many of the great sources of supply in the southern hemisphere, but he had failed in his objective. America was solving the problem of supplying the Allies by relying on three avenues of exertion: 1. The people and the lands were capable of increasing production. 2. With a higher standard of living, and therefore a larger individual food consumption than any other population in the world, the Americans had a larger possible margin for reduction of consumption without damage to public health. 3. By the enforcement of restriction on export they could direct the total stream of food from the United States directly into Allied hands, to the exclusion of all others, unless those others were prepared to give service to shipping or materials to the Allied cause to repay them for their sacrifice. During the past twelve months they had exported about 10,000,000 tons of food, and, aside from their diminished production during that year, it is to be remembered that the United States, except under the pressure of this war, is not normally a food-exporting country of consequence. The saving of foodstuffs in the United States has been wholly on a voluntary basis. It had been the ambition of the American people during the past year that the restriction in quantity of breadstuffs in Europe should be relieved and the quality of the loaf improved. He believed that a less moderate mixture of other cereals than wheat in the loaf would be possible and thus better bread provided for the entire 220,000,000 people opposed to Germany. This year a reserve must be built up in breadstuff supplies against the ever-present climatic dangers to harvest. The great problem of agricultural substitution was dominated by two critical relative factors, first the time factor and second the expenditure in fodder and therefore land productivity. To increase the beef production would require from three to five years. On the other hand, they could bring an enormous increase in meat and fat production through swine within from nine to twelve months. They could also produce the same food value from swine with one fourth the consumption of fodder crops that they could obtain from cattle. They had therefore urged, and given assurances to their agricultural population, which had led to a wonderful increase in their swine production. He had in his possession the needs of the European Allies for meats. The United States could furnish this whole volume in pork alone. In the next twelve months with less pressure of saving on the people, it could export 18,000,000 tons if it should prove necessary, and to this Canada would add about 3,000,000 tons.

Turning to the position of the enemy, he said that a body of about 100,000 persons, comprising the dominating spirit in Germany, through years of machiavellian industry, had been able to put against the rest of the world the forces of 160,000,000 people, but they had not been able to produce their needed food. They had overrun their borders, they had crushed whole races of people, and they were daily supplementing their own food supplies by extraction of the already short supplies of these helpless people. A periphery of starvation rang about so-called German victory. These conquered people, already hungry, were being slowly and surely starved, and their loss of lives through malnutrition and starvation during the next harvest year would be far larger than all the casualties on the western front. There was no greater illumination of the ill that has been done to civilization through the ambitions of this group of men than the appalling outlook that confronts this helpless mass now under the beneficence of Kultur. America was able to relieve these people only at one point, and that was in Belgium and northern France.

New Rationing Orders for Invalids

The food controller has issued new regulations with regard to rations for invalids. He understands the difficult position in which physicians are sometimes placed when asked to sign certificates for extra rations, but he relies on the profession to help him in safeguarding the national food supplies by giving certificates only when essential. Importunate patients should be told that a physician has no power to grant extra rations, but only to recommend a case for such a grant when he is convinced of its necessity; and that the final responsibility for giving or withholding a grant rests with the Ministry of Food, which has to take into account not only the requirements of the individual, but also the state of the national supplies. Physicians are asked to recommend milk (which is not rationed) rather than extra allowances of meat and butter, whenever this will meet the needs of the patient, as extra rations can be granted only when it is clear that the patient cannot obtain sufficient nourishment from unrationed foods. Extra meat is allowed in certain cases for obtaining raw beef juice, but not for making beef tea. For the latter purpose a commercial meat extract should be used. It has been found that the terms "pancreatic insufficiency" and "celiac disease" are used so loosely that medical certificates bearing these diagnoses alone can no longer be recognized. A brief statement of the patient's symptoms should be supplied as well. Extra rations may be granted for the diseases shown in the accompanying table.

RATIONS THAT MAY BE GRANTED IN CERTAIN DISEASES

Diseases	Maximal Weekly Rations, Including Ordinary Rations		
	Butcher's Meat	Bacon	Butter and Margarin
			Number of times the ordinary ration (which may vary from time to time)
Active tuberculosis, pulmonary or otherwise	2½ lb.	1 lb	Three times
Diabetes and glycosuria	2½ lb.	1 lb	Four times
Exophthalmic goiter	Either 2 lb. and	Ordinary ration and.....	Once
	Or ordinary ration and.....	Ordinary ration and.....	Twice
Pernicious anemia	2 lb.	Ordinary ration	Once
Cancer	Either 2 lb. and	Ordinary ration and.....	Twice
	Or ordinary ration and.....	Ordinary ration and.....	Three times
Senile dyspepsia	2 lb.	Ordinary ration	Once
Convalescence after severe illness or severe operation	2 lb.	Ordinary ration	Twice
Infantile diarrhea and wasting	In the case of children under 2 years suffering from this complaint, extra meat may be granted not exceeding 2 lb. per week, for a maximum of 4 weeks for the purpose of making raw beef juice.		

When a patient is medically certified as being unable, for some reason specified, to take one or other of butcher's meat, bacon or butter, his rations may be interchanged at the discretion of the committee in the following proportions: One coupon for butcher's meat a week equals one coupon for bacon a week equals one butter-margarin coupon a month. A return to the meat diet will be allowed at any time on surrender of the unused extra fats coupons. Instead of the regulation war flour, a permit to use white flour may be granted in active gastric ulcer, active duodenal ulcer, malignant disease of the stomach (gastric carcinoma), senile dyspepsia, chronic diarrhea and intestinal ulceration. By "active"

gastric or duodenal ulcer is meant either that stage of the disease in which the patient is undergoing treatment in bed or the convalescent period immediately following it. The term "senile dyspepsia" is used for that form of flatulent indigestion so often encountered in aged persons in association with chronic bronchitis or cardiac weakness.

Medical Women in the Army

Owing to the shortage of male labor in every occupation, the women have been employed in enormous numbers and have worked exceedingly well both in the auxiliary services of the army and in civil life. Women physicians have also proved exceedingly useful, but some dissatisfaction exists with regard to the position of medical women serving in the army. The government has refused to grant them commissions. Dr. Jane Walker, president of the Medical Women's Federation, has written a letter to the *Times* voicing the growing indignation of medical women from whom, she says, the War Office continues to ask more and more while treating them as inferior to the men who are doing the same work. Women serving abroad receive the same pay as men and the same gratuity, but they receive neither ration nor billeting allowance, and those two allowances come to over $7.50 a week. Women serving at home receive neither the ration allowance nor the $300 gratuity that is paid to the men. They are also refused the privilege, given not only to officers, but also to army sisters and nurses, of traveling on leave with half-fare vouchers, and they pay the income tax as civilians. The ground for refusing the gratuity and the reduced rate of income tax is that the woman is engaged on a monthly contract, while the man joins for a year or until the end of the war. But the woman is given no option. She is not allowed to join for more than a month. Yet, whether she joins for a month or a year she is giving up her home and her private practice. Medical women have now been serving for more than two years in the army without rank, and they are suffering not only financially but also in their professional position. Working without rank among a body of men where the whole discipline depends on badges and rank, they have not the authority necessary for carrying out their duties, such as they have in civil hospitals. Although many of the medical women serving in the army not only have a high professional standing in civil practice, but now have a large experience in military hospitals, they rank below the latest joined subaltern, and are obliged to take their orders from him. When they travel, they travel not as officers, but as "soldiers' wives." In numerous ways, in dealing with their patients, with the orderlies, with German prisoners, and with colored troops, they find that they have not the respect and the prompt obedience to which they are entitled and which rank would give them. It is only fair to add that recently the War Office gave medical women serving abroad the right to wear uniforms, but that right does not touch the grievances. Many medical women say that a uniform without rank means nothing, and that it will only serve to emphasize the position of inferiority in which they are placed.

PARIS LETTER

PARIS, July 25, 1918.

Donation from the American Red Cross

In view of the remarkable results obtained by la section de rééducation professionelle des blessés de la guerre (rehabilitation of the maimed soldiers) of the Ecole nationale d'horlogerie at Cluses (département de la Haute-Savoie), the minister of commerce recently gave permission to build a new annex to that institution. The American Red Cross, showing again the interest it takes in our wounded, has agreed to contribute half of the expense of building and equipment of this addition, representing the sum of 200,000 francs. M. Clémentel, minister of commerce and industry, has extended the thanks of the government to the American Red Cross for this most generous gift.

American Sanitary Trains

In less than six months the medical department of the United States Army has established sixteen model sanitary trains which are now running on the French railroads, and are destined for the American army. The sixteenth train was "inaugurated" at Pantin. Seven of these trains are sidetracked in the suburbs of Paris, constituting a reserve for emergencies. More than 640 wounded can be taken care of on one train, which has 360 beds. Each coach for the wounded is provided with a bath room. The train is lighted by electricity and has telephone connection between all the coaches.

Monument for Dr. Magnan

A group of former students and friends and confrères of the late Dr. Magnan (THE JOURNAL, Nov. 4, 1916, p. 1382), honorary physician-in-chief of the Asile de Sainte-Anne, have decided to erect a monument to his memory. By reason of pre ent conditions, the executive committee has decided not to take definite action until after the war (*aprés la victoire*). Subscriptions to this fund will be received by Dr. Marcel Briand, physician-in-chief at Sainte-Anne, president of the executive committee, 67, boulevard des Invalides, Paris, and by M. P. Masson, the publisher, 120, boulevard Saint-Germain, Paris, treasurer.

Honoring the American Red Cross

At a meeting held July 4, the Académie Française bestowed a large gold medal on the American Red Cross in appreciation of its admirable work. The Union des Syndicats médicaux de France also sent the following letter to the American Red Cross: "The Conseil d'Administration de l'Union des Syndicats médicaux de France, after having, in the name of the ten thousand physicians which it represents, written to the president of the American Red Cross in France, in order to express to him its appreciation of all the good which that organization has done, its great generosity and its admirable devotion to our country, sends to the American people and their noble representative the assurance of its profound admiration and of its lively appreciation. It is firmly convinced that the confraternity of the armies of the two Republics, and their indissoluble union, will, in the future, safeguard peace, right, justice and progress." (The original French was given recently in THE JOURNAL, page 482.)

American University Union

The American University Union, whose membership consists of numerous French and Americans, recently gave a banquet in honor of M. André Tardieu, high commissioner of the *affaires de guerre franco-américaines*. M. Tardieu delivered a most interesting address. He called attention especially to all that the American universities represent in intellectual vigor and moral force, the important rôle they have played in the development and elevation of the soul of the American people, and all the principles of honor, of solidarity and of disinterestedness which direct their activities.

Sending Children to the Country

On the suggestion of M. Ambroise Rendu, the city council of Paris has decided to create a thousand purses of 400 francs each for the purpose of placing children in the sanatoriums or among the farmers under the conditions established by the Oeuvre Grancher, described in THE JOURNAL, July 6, 1918, pp. 1-6.

Distribution of Milk to Children Under Three Years of Age

The city council of Paris, at the request of M. Ambroise Rendu, has decided to establish a credit of 2,400,000 francs to assure the continuance of the gratuitous distribution of milk to children who are less than 3 years of age.

The French Society for Aiding Wounded Soldiers

The Société française de secours aux blessés militaires has held a general meeting. Reports made showed that the society has disbursed 158,692,000 francs between Aug. 2, 1914, and Jan. 1, 1918. The number of hospital days was 35,001,699. The society maintained 162 infirmaries or depot canteens and 164 soldier's clubs—*cercles de soldat*. Thirteen tuberculosis dispensaries or special hospitals were established, four of the hospitals to be permanent after the war. The society has a personnel of 18,846 brevet nurses and about 12,000 auxiliaries. Of this number more than 3,500 are in service in the military hospitals at the front, in Paris or in the provinces, 40 are at Saloniki, 12 at Morocco, 154 have been assigned to accompany evacuation trains and have made 77 trips. Since the declaration of war, 11 nurses have been killed and 20 wounded during bombardments; 30 have succumbed to contagious diseases contracted at the bedside of sick soldiers; 3 have been awarded the Legion of Honor, 212 the Croix de guerre, 892 the médaille des épidémies.

The meeting was closed with a vote of thanks to the American Red Cross, to England, the South American countries, and to French overseas possessions which have come to the assistance of the society in its work.

Reception of American Medical Mission

At the request of M. André Tardieu, high commissioner of the *affaires de guerre franco-américaines*, the Comité

d'études sionistes de Paris, over which Baron Rothschild presides, received the medical mission which was sent by the American Zionists and was then passing through Paris on its way to Palestine. This mission is to join another American medical mission organized by the American Red Cross, under the direction of Dr. Finley, which has already reached Jerusalem. In the course of this reception of the zionist mission, addresses were made by M. Tardieu, Dr. Louis Mourier, under-secretary of State of the Service de Santé militaire, and by M. Sylvain Lévi, professor in the Collège de France, who has returned from Palestine, where he had been in charge of a mission.

In Memory of Drs. Pozzi and Bonnaire

The superior council of the Assistance publique has decided to name a ward in the Broca hospital in honor of Professor Pozzi, and a ward in the Maternité in honor of Dr. Bonnaire.

Meatless Days Abolished

The régime of three meatless days a week which was instituted last April has been abolished. In a report made to the president of the Republic by M. Victor Boret, minister of agriculture and food commissioner, it is shown that the shortage of cattle no longer exists. The restrictions previously imposed resulted in a saving in meat consumption of about 25 per cent. The animals have begun to come in from the pastures, where the continued drouth has made it impossible to keep them as long as it was hoped would be possible. The supply of frozen meat has been replenished, thanks to large imports, and the military commissary department has been able to cut down the number of cattle demanded of the producers. Lastly, the high prices have been combated sucessfully by a series of measures which are beginning to show their full effect. It should be stated that the shortage of fruits and legumes, due to atmospheric conditions, makes it impossible to put these replacement foods or substitutes for meat at the disposal of the consumer in sufficient quantity to maintain the restrictions in the consumption of butcher's meat for this time of the year.

The saving of meat during the two months that the meatless regulation was in force amounted to 28,500,000 kg., this result being obtained only by the increase in imports of frozen meats and conserved meats.

Course in English for Soldiers

A circular issued by the minister of war to the commanding generals orders the institution of a free and optional course in English in every army post or garrison.

M. Mesureur and the Hospital Physicians

As stated in a previous letter, M. Mesureur, director of the general administration of the Assistance publique of Paris, addressed a circular to the directors of the hospitals (Paris Letter, June 27, 1918). This circular has provoked a lively protest from the medical corps, hence M. Mesureur sent a letter to the Société des médecins des hôpitaux in which he expressed his regrets at having unintentionally provoked these protests by a badly worded phrase. He rendered justice to the devotion of which the hospital physicians have given and are still giving so many proofs.

Franco-American Scientific Society

There has been organized at Dijon a scientific society or *cercle* for the purpose of amalgamating Franco-American interests in this special territory. The presidents are Major Carmon of the United States Army, and Professor Bataillon, dean of the Faculty of Science. Among those present at the first meeting were American military medical officers, the médecin chef de la Place, the members of the Corps de santé français, the professors of the faculty of science and of the Ecole de médecine et de pharmacie de Dijon.

Marriages

LIEUT. JOHN JACOB FOSSLER, M. R. C., U. S. Army, Millard, Neb., on duty at Fort Riley, Kan., to Mrs. Eva Brewington of Omaha, at Lincoln, Neb., July 20.

THOMAS MADISON TAYLOR, New York City, to Mrs. Wallace Moore Bartlett of Lawrenceburg, Ky., August 14.

RACHEL WATKINS, Chicago, to Mr. Charles A. Long of Holdrege, Neb., August 8.

Deaths

Walter Kempster, Milwaukee; Long Island College Hospital, Brooklyn, 1864; aged 77; a veteran of the Civil War, in which he served first in the line and for the last year as Acting Assistant Surgeon, U. S. Army; assistant superintendent of the New York State Asylum for Idiots, in 1866-1867; assistant physician to the New York Hospital for the Insane, Utica, from 1867-1873; superintendent of the Northern Hospital for the Insane, Oshkosh, Wis., from 1873-1884; assistant editor of the *American Journal of Insanity* for ten years; health commissioner of Milwaukee from 1894-1898; professor of mental diseases in the Wisconsin College of Physicians and Surgeons; author of many monographs; nationally prominent as a specialist in the treatment of insanity; died at his home, August 22.

John Howard Landis, Cincinnati; Medical College of Ohio, Cincinnati, 1889; aged 57; a Fellow of the American Medical Association; professor of pathology in the Laura Memorial Medical College, Cincinnati, from 1892-1895; a member of the staff of St. Mary's Hospital since 1907; professor of hygiene and public health in the University of Cincinnati, since 1908; a member of the Cincinnati Board of Health, since 1909, and health officer of Cincinnati since 1910; an authority on public and municipal health problems of more than national repute; died at his home in Cincinnati, August 23.

Major David Everett Wheeler, M. R. C., U. S. Army, Buffalo; College of Physicians and Surgeons in the city of New York, 1898; aged 46; at one time a Fellow of the American Medical Association; a member of the Medical Society of the State of New York, who went to Europe during the first year of the war as a Red Cross worker, enlisted in the Foreign Legion in February, 1915, and had served as regimental surgeon in Lorraine, Cantigny, and Chateau Thierry and been awarded the Croix de guerre for bravery; was killed, August 13, while caring for the wounded on the field.

Major William Roy Ream, M. C., U. S. Army, San Diego, Calif.; Sioux City, Iowa, College of Medicine, 1902; aged 41; formerly of Walthill, Neb.; a Fellow of the American Medical Association; flight surgeon of the British-American flying circus, which started, August 24, from Indianapolis, to St. Louis, was killed by the fall of an aeroplane near Effingham, Ill., August 24.

Lieut. Sidney Lehman Spiegleberg, M. R. C., U. S. Army, New York City; College of Physicians and Surgeons in the city of New York, 1906; aged 37; a Fellow of the American Medical Association and a Surgeon on duty with the American Expeditionary Forces in France; died at Chateau Thierry, France, July 15, from heart disease.

Andrew Jefferson Osborne, Lawrenceville, Va.; Medical College of Virginia, 1899; aged 49; at one time a Fellow of the American Medical Association; a member of the Medical Society of Virginia; died in a hospital in Lawrenceville, August 9, as the result of wounds sustained in a gun-fight with one of his tenants a few hours before.

William A. Dietrich, Chattanooga, Tenn.; University of Maryland, Baltimore, 1879; aged 60; at one time a Fellow of the American Medical Association; a member of the Tennessee State Medical Association; a specialist on diseases of the eye, ear, nose and throat; died at the home of his sister, in St. Joseph, Mich., about August 13.

Lieut. William Joline Martin, M. R. C., U. S. Army, Wilkinsburg, Pa.; Hahnemann Medical College, Philadelphia, 1899; aged 40; on duty with the British Forces at Queen Mary's Military Hospital, Whalley, Lancashire, England, died in American Red Cross Hospital No. 4, Liverpool, England, July 28, from pneumonia.

Daniel C. Peters, Kokomo, Ind.; Kentucky School of Medicine, Louisville, 1891; aged 58; at one time a Fellow of the American Medical Association; a member of the Indiana State Medical Association; until eighteen months ago a practitioner of Greentown, Ind.; died at his home, July 4, from cerebral hemorrhage.

John Niven Darrough, Kansas City, Mo.; Kansas City Hahnemann College, 1911; aged 31; a Fellow of the American Medical Association; who was discharged from the Medical Reserve Corps recently on account of pulmonary tuberculosis; died at the home of his father in Kansas City, August 9.

Marion Madison Norton, Lake Village, Ark.; Chattanooga Medical College, 1898; aged 45; a Fellow of the American

Medical Association, and in 1913, president of Chicot County Medical Society; proprietor of a private sanatorium in Lake Village; died at his home, August 9, from cerebral hemorrhage.

Guy Jacob Kent, West Liberty, Ohio; Eclectic Medical Institute, Cincinnati, 1902; aged 40; a member of the Ohio State Medical Association and secretary of the Logan County Medical Society; died at his home, August 11, from general peritonitis, four days after a surgical operation.

Ina E. Brown, Los Angeles; University of Southern California, Los Angeles, 1904; aged 43; at one time a Fellow of the American Medical Association, also a druggist; died at his home, August 13, from the effects of poison self-administered, it is believed, with suicidal intent.

Joseph B. Colcord, Port Allegany, Pa.; College of Physicians and Surgeons, Baltimore, 1885; aged 56; a Fellow of the American Medical Association; postmaster of Port Allegany for eight years; died in a hospital in Buffalo, August 7, after a surgical operation.

Frank Harper Ross, Brooklyn; Starling Medical College, Columbus, Ohio, 1879, Bellevue Medical College, 1880; aged 62; a member of the Medical Society of the State of New York; died at his home, August 10, from tuberculosis.

Marion Eugene Martin, Attica, N. Y.; Buffalo, N. Y., University, 1892; aged 54; a Fellow of the American Medical Association; for several years coroner of Wyoming County; died at his home, August 14, from heart disease.

Charles W. Cook, New York City; Hahnemann Medical College, Chicago, 1875; aged 69; for several years general freight agent of the Santa Fe system; died suddenly in Grand Rapids, Mich., from heart disease.

William John Broome, Los Angeles; University of Toronto, 1907; aged 34; a Fellow of the American Medical Association and a specialist on tuberculosis; died at his home, July 23, from pulmonary hemorrhage.

William M. Jarvis, Kansas City, Mo.; Washington University, St. Louis, 1884; aged 69; at one time a member of the Missouri State Medical Association; died in a sanatorium in Fulton, Mo., recently.

Marsden Aubrey H. Cleckley, Augusta, Ga.; Hahnemann Medical College, Philadelphia, 1856; aged 86; examining surgeon for the Augusta district during the Civil War; died at his home, August 4.

John D. Clardy, Hopkinsville, Ky.; University of Pennsylvania, Philadelphia, 1851; aged 90; a member of Congress in 1894; died at his home near Hopkinsville, recently.

Arthur M. Greenfield, Westfield, Pa.; Baltimore Medical College, 1892; aged 60; also a druggist, died at his home, July 27, from acute dilatation of the heart.

John Massman, Chicago, Rush Medical College, 1867; aged 79; a veteran of the Civil War; died at his home, August 12, from carcinoma of the stomach.

Patrick James Cal'aghan, Waterbury, Conn.; University of Alabama, Mobile, 1892; aged 58; died at the home of his sister in Bridgeport, Conn., August 8.

Edward Tufts Williams, Boston; Harvard Medical School, 1868; aged 74; a member of the Massachusetts Medical Society; died at his home, August 5.

Max Frederick Albu, Hartford, Conn. (license, Connecticut, 1893); aged 70; a practitioner for forty-five years; died in St. Francis Hospital, Hartford, July 21.

David F. Banks, Nashville, Tenn.; University of Nashville, Tenn., 1880; aged 64; died at his home in North Nashville, August 6, from heart disease.

Mary Anna Allen Howell, Camden, N. J.; Woman's Medical College of Pennsylvania, Philadelphia, 1891; aged 71; died at her home, August 9.

William M. Helm, Columbus (Ohio) Eclectic Medical Institute, Cincinnati, 1871; aged 71; died at his home, August 7, from intestinal obstruction.

Sumner Hamilton Boynton, Los Angeles; Homeopathic Medical College of Philadelphia, 1866; aged 72; died at his home, August 2.

Richard C. Perkins, Lynnhaven, Va.; Medical College of Virginia, Richmond, 1860; aged 95; died at his home, July 13.

James D. Southward, Carey, Ohio; Eclectic Medical Institute, Cincinnati, 1890; aged 57; died at his home, August 6.

Henry Day, Newark, Ohio; University of Maryland, Baltimore, 1868; aged 79; died at his home, July 30.

Claude Evans King, Mayesville, S. C.; Baltimore University, 1893; aged 46; died at his home, July 17.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

TWO MAIL-ORDER FRAUDS

Gallstone Remedy Company.—One L. E. Bowers conducted a fraudulent medical mail-order business from Chicago under the name of the "Gallstone Remedy Company" selling a preparation called "Gall-Tone." In December, 1917, Bowers was called on to show cause why a fraud order should not be issued against him and his business. A Chicago attorney first represented Bowers but afterward withdrew, whereupon one W. H. Landvoigt of Washington acted as Bowers' counsel. It was finally agreed that if Bowers would file an affidavit to the effect that his "gallstone cure" scheme had been discontinued and would not be resumed and would also file an order with the Chicago postmaster directing him to treat as "Refused" all mail matter addressed to the Gallstone Remedy Company or to "L. E. Bowers, Manager," that the solicitor for the Post-Office Department would be disposed to withhold a recommendation for the issuance of a fraud order. Bowers' counsel finally declared that Bowers would be willing to file such an affidavit and order but asked that the name "L. E. Bowers, Manager," be omitted from the order as Bowers was engaged in other enterprises and the inclusion of his individual name would work a hardship. Mr. Landvoigt assured the Post-Office Department that Bowers would absolutely discontinue the use of the mails in the conduct of the so-called gallstone business if permitted to receive mail under the name "L. E. Bowers, Manager." The Post-Office Department consented to the arrangement and an affidavit was executed and filed by Bowers to the effect demanded by the department. The whole case, however, was reopened when it was found that Bowers totally disregarded and violated his stipulation by mailing to former victims a communication reading as follows:

IMPORTANT NOTICE

TO MY DEAR FRIEND & PATRON:—As all Post Office or Mail Order sales of the wonderful remedy—GALL-TONE, have been discontinued, for the present, at least, I will have to notify you that all packages are now sent by Express. I will also have to ask you very kindly to send all future orders and remittances to me personally, either by Express Money Order or Bank Draft. Kindly use the enclosed envelope or one addressed like it.

This is the only way in which I can serve you, for the present, as the sale of GALL-TONE through the mails has been discontinued.

Will you also kindly notify your friends in order to avoid any misunderstanding or disappointing anyone, or depriving anyone of the help which this superior remedy affords.

With kindest regards and good wishes, I remain yours truly,

L. E. Bowers,
219 S. Dearborn St., Chicago, Ill.

P. S. Prices of GALL-TONE by Express f. o. b. until further notice are —One Pkg. $5.00. 2 Pkgs. $8.50. 4 Pkgs. $15.00. 8 Pkgs. $25.00. Mention your nearest express office.

It will be well for you to order a supply NOW to cover future needs as it may become more difficult or even impossible to serve you at all, later on. We have only the present, the future is not ours. I will do the best I can but difficulties may become entirely unsurmountable. So be safe and supply yourself liberally NOW while yet you may surely do so.

L. E. BOWERS.

Following this, Judge Lamar, solicitor for the Post-Office Department, submitted the facts regarding the case to the Postmaster-General and recommended the issuance of a fraud order. Judge Lamar, in his memorandum, pointed out that Bowers "is not a physician and has no medical education or training." The memorandum continues:

"In spite of his ignorance of the effect of drugs in the treatment of disease he leads persons to believe that he is qualified to treat ailments of the most serious nature and does not hesitate to determine the treatment in all cases where the sufferer communicates his troubles, and prescribes the same remedy in all cases guaranteeing that a cure will

follow its use. The alleged remedy he exploits is known as 'Gall-Tone,' a preparation he obtains in large quantities from manufacturing chemists."

Judge Lamar then quotes extensively from Bowers' advertising and shows the absurdity and fraudulence of the claims made. Then:

"Through his entire literature Bowers very indelicately seeks to impress on those who patronize him his absolute honesty, his fair dealing, and his good faith and trustworthiness; yet after having had pointed out to him the viciousness of this scheme, and after having solemnly agreed to abandon it, the ink was scarcely dry on the affidavit filed by him with this office evidencing that purpose before he betrayed his honor by breaking his pledge and continuing the operation of the scheme in his own name."

A fraud order against the company was issued July 27, 1918.

New Life Remedy Company.—Joseph H. Pilson conducted a mail-order business under such names as "New Life Remedy Company," "Mail-Order Supply Company," "Vital Fire Remedy Company" and "M. J. Moore, Secretary." These concerns were conducted from 1416 Broadway and 149 W. 35th St., New York City, and 273 Washington St., Jersey City, N. J. In November, 1917, Pilson was called on to show cause why a fraud order should not be issued against his businesses. In January, 1918, a written answer signed by Douglas D. T. Story, attorney for Pilson, was made to the charges, but neither Pilson nor his attorney appeared at the hearing. With the answer were submitted six testimonial letters, three addressed to the "New Life Remedy Company" and three to the "Vital Fire Remedy Company" together with copies of the booklets used in the conduct of the business and an affidavit giving the formula for one of the preparations sold in furtherance of the scheme, also Lilly's Catalogue, 1916-17, containing similar formulas. Judge Lamar, solicitor of the Post Office Department, in recommending the issuance of a fraud order, gave the facts in the case, in part, as follows:

"The business done by Pilson under the above names consists of the sale of a certain mixture of drugs represented to restore lost manhood, and the sale of another mixture of drugs which he represents in effect will cause abortion in pregnant women. Relying on these representations numbers of men and women make remittances to him in payment for these so-called remedies. Pilson is not a physician and is not capable of diagnosing and treating the diseases and conditions which he claims his treatment will cure. The medicine furnished by him to persons who make remittances is compounded by manufacturing chemists and sold to him in large quantities. The business has been conducted by respondent for a number of years under these various names, with slight modifications of the representations employed but without material change in substance or effect. In his alleged cure for lost manhood the same mixture of drugs has been used throughout, whether called 'Vital Fire Pills' or 'New Force Tablets.'"

It was shown that Pilson in selling his "Vital Fire" and "New Force Tablets" did not hesitate to furnish his remedies to men suffering from nervous debility or loss of sexual power regardless of the cause thereof or the condition of the patient and regardless also of the age of the person. The memorandum pointed out that the falsity of Pilson's representations were not only shown by the evidence but were clearly apparent. It emphasized further the fact that the condition known as "lost manhood" may arise from many causes any of which may require different treatment. Pilson's treatment did not vary and, no matter what might be the cause of the disease or the condition of the patient, the same stock preparation was used indiscriminately under the positive assurance that it would cure.

The preparation sold by Pilson under the virtual representation that it would cause abortion in pregnant women was known as "Compound Pills of Tansy." Pilson, in his answer to the government's charges, declared that he never represented that his preparation would cause abortion, but the government had in its possession letters following a test correspondence showing that Pilson was willing to furnish, for a consideration, pills for the purpose of causing abortion. Judge Lamar called attention to the further fact that in March, 1915, Pilson was convicted and sentenced to a term of six months in the Blackwell's Island penitentiary on an indictment charging him with the fraudulent use of the mails. An appeal was taken and nearly three years afterward (February, 1918) the judgment of the lower courts was affirmed and the conviction sustained. Pilson's scheme was declared to be one for obtaining money through the mails by means of false and fraudulent pretenses, representations and promises. A fraud order was issued, March 29, 1918.

Correspondence

REJECTIONS OF REGISTRANTS AT CAMP FOR PHYSICAL CAUSES

To the Editor:—The rejections from camp have certainly become an exceedingly important matter.

Within the past few weeks I have read carefully the articles in THE JOURNAL entitled "Physical Examinations Under the Selective Service: A Meeting of the Section on Miscellaneous Topics, Held in the Studebaker Theater, Chicago, Thursday, June 13," published, in part, July 6, and concluded, July 13, 1918. Similar meetings were held in New York.

There were evidences of lack of respect on the part of one examiner for the opinions of another. Notably on page 28, first column, Dr. James B. Herrick of the District Board of Chicago is quoted as having said:

> Now the Army physician's examination is final and authoritative as it should be. But the reason the taunt of the returned man cuts when he hints or plainly says to the board physician that he, the board physician, evidently did not understand his business, is that sometimes the Army examination has been made by a physician who in civilian life was known as comparatively young, inexperienced, and in every way outclassed by the board doctor who, perhaps, was his teacher or medical adviser, and whose ability to recognize tuberculosis, heart disease, hernia or flatfoot is surely equal to that of the Army man.

Since these meetings were held the situation has grown worse instead of better, and in some cantonments to which recruits have been sent from New York City, rejections have risen in some instances to approximately 25 per cent. At least one camp surgeon, who seems to have focused on obesity, rejecting an unusual number of men, has put himself on record in strong criticism of the preliminary work of the examining physicians connected with Local and Medical Advisory Boards, going so far as to express the opinion that if the draft board physicians had done their duty and selected men in accordance with instructions as per Form 75, his rejections would have been a small fraction of 1 per cent. Probably on more deliberate consideration he will realize that so close an approximation to perfection is too much to demand or expect in medical examinations, where standards are not always exact, and where, after all, something is left to individual judgment under the regulations. This has been particularly true of obesity, as will be seen later.

Helpful suggestions have been invited, and I wish to offer this small contribution to the time and thought which are being devoted to the problem:

First: One cannot help feeling that each class of examiners should be charitable and should cultivate a very kindly disposition toward the others. Our common and supreme purpose is to win the war.

Second: Something probably ought to be done to improve the board examinations. In regard to obesity, for example, probably some maximum weight for height should be tabulated as a guide similar to the minimum weight now in use. It will be recalled that the net minimum was not promulgated until after we had begun our work in August, 1917. I confess that I have always looked on the standard weights for height given in the table as the correct and desirable or normal weights, not in any sense as top weights, until I observed in the new regulations the expression "(*a*) Those who fall within the accepted standards (A) or minimum requirements (B)," etc. This is immediately offset by "(*b*) Those whose weight is greater than the standards indicated for the height

(A) provided the overweight is not so excessive as to interfere with military training" (Form 75). And, by the way, medical advisory experts probably should not try quite so hard by means of brilliant illumination, particularly clean cards, etc., to make the registrant read the second line instead of the top letter. It costs the government a lot of money in round-trip transportation.

Third: In regard to the examinations at camp, I wish to suggest an experiment which should not be impracticable if handled with diplomacy. It would be illuminating, it seems to me, if a certain number of recruits could be independently examined at camp by three camp surgeons, or groups of surgeons, whose opinions should be separately recorded and kept secret from one another and from the recruit until each has completed his work and recorded the result, including his recommendation. Forty recruits would give easy percentages and could be examined by one surgeon easily in one day. When there is a group of examiners a hundred recruits, taken just as they come, would answer still better. They could be reexamined by the other surgeons the same day or on successive days. Rejections could be based on the results of the three examinations, passed on by a qualified board or judge. After sufficient trials such a scheme might become part of the regulations.

An occasional exchange of camp surgeons, so that the three examinations might be made by men regularly attached to two other camps in addition to the examiner connected with the local cantonment, would add interest to the plan and its results.

The present method of selection at camp by means of examining units, comprising approximately ten members, each examining in his own specialty, with a second examination by another similar unit when a question arises, is of course highly satisfactory if there is no flaw in the efficiency of the personnel. My suggestion would furnish a means of control on the latter. Three independent examinations of men as they arrive at camp would tend to keep every examiner up to his work in the knowledge that his results will be checked up in comparison with the others. The opinion of a man of strong personality, when known, is prone to influence his successor. The third examination eliminates the possibility of an even division of opinion.

I really believe that some such modification of the present procedure would work out advantageously. When Local, Medical Advisory, and District Boards have worked many hours in some cases to classify and induct a soldier, it seems to be putting too much responsibility on one man at camp, to leave the final decision practically entirely to him. And this remark applies with special force where the recruit has been detected in malingering and his medical examination papers bear a statement to this effect.

The claims of the registrant deserve due consideration. Errors on the part of boards and medical examiners are possible in the highly complex work of the draft. The foregoing suggestions are modestly offered in the hope that they may be of interest and possibly of some value for the good of the service.

J. MILTON MABBOTT, M.D., New York.

"RECONSTRUCTION AND REHABILITATION OF THE TUBERCULOUS SOLDIER"

To the Editor:—Dr. Banks' letter (THE JOURNAL, Aug. 24, 1918, p. 681) criticizing my paper entitled "The Reconstruction and Rehabilitation of the Tuberculous Soldier" requires some comment. It was not the intention of the writer to belittle in any way the valuable work being done by the Bureau of War Risk Insurance. It is true that discharged tuberculous soldiers are being looked after medically by the Bureau of War Risk Insurance, but my not calling attention to this fact was no greater an oversight than my failure to mention the American Red Cross, National Association for the Study and Prevention of Tuberculosis, the National Home for Disabled Volunteer Soldiers, and the Soldiers' Home, Washington, D. C., which are all doing equally commendable work in this line. However, from Dr. Banks' own statement it would appear that the activities of the Bureau of War Risk Insurance must be largely confined to financial matters, for he himself says that patients are treated in hospitals belonging to the Public Health Service and civilian sanatoriums, while the training proper is in the hands of the Board of Vocational Education. What is left for the Bureau of War risks but to pay the bills for such service, and to provide the compensation to which the patients are entitled under the law? It would not appear that there are at present any adequate accommodations for the large number of tuberculous patients now cared for by the Army if they were at once discharged as Dr. Banks desires. Fort Stanton is filled already to overflowing, and the capacity of the combined sanatoriums of the country, deducting the beds needed for civilian patients (and some of the sanatoriums have waiting lists) would not be sufficient to receive the cases of tuberculosis now under treatment in Army hospitals.

The word "reconstructed," perhaps used a little too freely in my paper, probably led to misapprehension. The Surgeon-General expects to hold tuberculous soldiers only until they are cured or as nearly cured as can be expected, and then turn them over to the Bureau of War Risk Insurance and the federal Board of Vocational Education. The training while in the service is more to give employment and avoid mental depression than to teach completely some useful trade.

If Dr. Banks had been better posted concerning the policies of the Surgeon-General and what is being done and has been done for tuberculous soldiers in the Army, he would have been saved considerable anxiety, and his remarks would have been more temperate. The purpose of transferring cases diagnosed as tuberculosis to Army tuberculosis hospitals is threefold: (1) To minimize mistakes in diagnosis; (2) to save men for the service, as a certain percentage of these patients will be returned to duty, and (3) to help the patient arrest his disease, and in so doing teach him how to take care of himself and the necessary precautions to prevent spread of infection. After this is accomplished, the diagnosis established and it is apparent that the patient will never return to duty, although there may be no absolute authority for retaining him in the military service, every endeavor will be made to have him voluntarily remain under treatment as long as such treatment is necessary. This is not militarism, but a conscientious effort for the good of the patient and the public as well, which should have the hearty support of the bureau which Dr. Banks represents.

E. H. BRUNS, M.D., Washington, D. C.
Lieutenant-Colonel, Medical Corps, U. S. Army.

KNOWLEDGE OF THE COMMUNICATION OF DISEASES BY MOSQUITO BITES

To the Editor:—About forty years before Manson suspected, and Ross proved, that malaria was conveyed by a suctorial insect, the information that the mosquito was capable of doing such a thing was imparted by barbarians to a civilized man, and by him it was scornfully published, and perhaps read by others in the same spirit. Witness this footnote to the first chapter of "First Footsteps in East Africa," written by Richard F. Burton in 1856:

> The mosquito bites bring on, according to the same authority, deadly fevers: the superstition probably arises from the fact that mosquitoes and fevers become formidable about the same time.

The "authority" was "the people" at Zayla, in Somaliland.

LEO NEWMARK, M.D., San Francisco.

Acute Suprarenal Insufficiency in Infectious Diseases.—At a recent meeting of the Medico-Surgical Society of Greece, A. Portocalis reported the death of four soldiers with apparently pernicious relapsing fever or malaria with symptoms of acute suprarenal insufficiency of the choleriform and algid type. In each he found the suprarenals the seat of old tuberculous lesions. Evidently under the influence of the intercurrent disease these old lesions had flared up into an acute and fatal phase. This latent Addison's disease can thus be transformed into a pernicious form by intercurrent erysipelas, typhoid or relapsing fever and malaria.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

UTILIZATION OF FAT INTRODUCED PARENTERALLY—METHOD OF ABSORPTION OF MERCURY BY INUNCTION

To the Editor:—In Queries and Minor Notes, please elucidate the following problem:

1. B claims that olive oil may be massaged into the skin and will be taken up directly and increase the body fat and the weight, and that he has often obtained such results with patients. A claims that since all fats must be broken down and resynthesized into the individual fat of the species, it is impossible to increase body fat unless it passes through the gastro-intestinal tract. Please give me your impression of this matter, and references to the literature if any.

2. Also, what is the approved explanation of the method by which mercury by inunction is absorbed? S. A. JACOBS, M.D., Milwaukee.

ANSWER.—1. Two questions are involved in the first part of our correspondent's inquiry:

(*a*) Can fat introduced into the body parenterally, that is, with avoidance of the alimentary digestive tract, be utilized? Although numerous earlier attempts at subcutaneous nutrition with fats have failed, the possibility of assimilating fat in this way cannot be denied. Mills (*Arch. Int. Med.*, May, 1911, p. 694) has reported on the basis of seemingly convincing evidence that fatty oils injected with antiseptic precautions into the subcutaneous tissue may under favorable conditions be absorbed therefrom and used in the body.

(*b*) Can fat be absorbed into the circulation directly through the sound skin? We know of no reliable evidence that more than traces, if any, of fats can be made to penetrate in this way. The presence of lipoid substances in the sebaceous secretions makes it possible for small quantities of water-insoluble, fat-soluble substances to become intimately incorporated with them. In this way oils may seem to disappear and traces of fat-soluble drugs may actually permeate the lipoid-impregnated cutaneous layers. At best, however, amounts of unchanged fats thus transferred would be far too small to have any real significance from a nutritive standpoint.

2. The absorption of mercury by inunction has recently been discussed by:

Wile, U. J., and Elliott, J. A.: Mode of Absorption of Mercury in the Inunction Treatment of Syphilis, THE JOURNAL, April 7, 1917, p. 1024.

Schamberg, J. F.; Kolmer, J. A.; Raiziss, G. W., and Gavron, J. L.: Experimental Studies of the Mode of Absorption of Mercury When Applied by Inunction, THE JOURNAL, Jan. 19, 1918, p. 142.

The Absorption and Excretion of Mercury, Current Comment, THE JOURNAL, Feb. 9, 1918, p. 392.

CALCIUM CHLORID ANTIFREEZE MIXTURE

To the Editor:—We all have heard that commercial calcium chlorid is an efficient and cheap antifreeze mixture for automobiles in winter time, and that it is apparently not injurious to the machine. If you have some table at hand, I shall be pleased to have you tell me the amount of calcium chlorid to put with each gallon of water to render it nonfreezable at 32, —20 and —50 F.

M. A. SHILLINGTON, M.D., Glendive, Mont.

ANSWER.—According to a recent publication (*Jour. Am. Chem. Soc.*, 1918, p. 1209), a 34 per cent. solution of anhydrous calcium chlorid in water will freeze at about —22 F. and a 36 per cent. solution at —24 F. It is possible to obtain a 48 per cent solution of anhydrous calcium chlorid in water which would freeze at about —58 F. A solution of this strength, however, would be very impracticable because of the liability of crystallization. The foregoing figures are given for chemically pure anhydrous calcium chlorid. As commercial calcium chlorid (also one of the calcium chlorid antifreeze preparations on the market) contains about 70 per cent. of anhydrous calcium chlorid, correspondingly larger amounts of material would have to be taken. The general rule is to put 13 pounds of commercial calcium chlorid into a radiator of 5½ gallons capacity, which gives protection to 20 below zero Fahrenheit. Some automobile experts hold that calcium chlorid is objectionable as an antifreeze preparation and that it attacks the joints and connections in pipes.

WHAT IS BEST WAY TO KEEP STATIC MACHINES DRY?

To the Editor:—I wish to ask through the readers of THE JOURNAL who have had experience with static machines the best and cheapest method of keeping such a machine dry and in good running order during the summer months. I use granulated calcium chlorid, but it is very expensive. Please omit my name. M. H. F.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

ALASKA: Juneau, Sept. 3. Sec., Dr. L. P. Dawes, Juneau.

ARIZONA: Phoenix, Oct. 1. Sec., Dr. Allen H. Williams, 219 Goodrich Bldg., Phoenix.

COLORADO: Denver, Oct. 1. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.

DISTRICT OF COLUMBIA: Washington, Oct. 8. Sec., Dr. Edgar P. Copeland, The Rockingham, Washington.

GEORGIA: Atlanta, Oct. 8-9. Sec., Dr. C. T. Nolan, Marietta.

HAWAII: Honolulu, Sept. 9-13. Pres. R. W. Benz, 1141 Alakea St., Honolulu.

IDAHO: Boise, Oct. 1-2. Sec., Dr. Ray H. Fisher, Rigby.

IOWA: Des Moines, Sept. 10-12. Sec., Dr. G. H. Sumner, Capitol Bldg., Des Moines.

KANSAS: Topeka, Oct. 8-9. Sec., Dr. H. A. Dykes, Lebanon.

MASSACHUSETTS: Boston, Sept. 10-12. Sec., Dr. W. P. Bowers, Room 501-1 Beacon St., Boston.

MICHIGAN: Lansing, Oct. 8-10. Sec., Dr. B. D. Harison, 504 Washington Arcade, Detroit.

MINNESOTA: Minneapolis, Oct. 1-4. Sec., Dr. T. McDavitt, 741 Lowry Bldg., St. Paul.

MISSOURI: Kansas City, Sept. 30-Oct. 2. Sec., Dr. George H. Jones, State House, Jefferson City.

MONTANA: Helena, Oct. 1. Sec., Dr. S. A. Cooney, Power Bldg., Helena.

NEW JERSEY: Trenton, Oct. 15. Sec., Dr. Alex. MacAlester, 438 E. State St., Trenton.

NEW MEXICO: Sante Fe, Oct. 14. Sec., W. E. Kaser, East Las Vegas.

NEW YORK: Albany, Buffalo, New York and Syracuse, Sept. 24-27. Mr. H. J. Hamilton, New York Dept. of Education, Albany.

OKLAHOMA: Oklahoma City, Oct. 8-9. Sec., Dr. J. J. Williams, Weatherford.

RHODE ISLAND: Providence, Oct. 3. Sec., Dr. B. U. Richards, 315 State House, Providence.

UTAH: Salt Lake City, Oct. 7-8. Sec., Dr. G. F. Harding, 405 Templeton Bldg., Salt Lake City.

Medical Students in the United Kingdom in 1918

A statement issued recently by the General Medical Council of Great Britain shows the actual attendance of students on courses of instruction for medical degrees in May, 1918, in the medical schools of the United Kingdom. The figures show that there are 2,043 students in the first year, including 665 women; there are 1,868 students in the second year, including 619 women; in the third year there are 1,534 students, including 484 women; in the fourth year there are 1,034 students, including 275 women, and in the fifth year 1,151 students, including 207 women. This gives a total of 7,630 students, including 2,250 women. It is evident, as set forth in the report, that the number of women students is decidedly on the increase.

Georgia April Examination

Dr. C. T. Nolan, secretary of the Georgia State Board of Medical Examiners, reports that 11 candidates were licensed at the special examination given April 11, 1918, for those who entered the U. S. Navy. Fifteen candidates were licensed through reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Atlanta Medical College		(1915)	84.2
Emory University	(1918) 83.3, 88.4, 91, 92.4, 92.5, 92.8, 93.9, 94, 94, 94.2.		

College	LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
University of Alabama		(1913)	Alabama
Southern Medical College		(1891)	Alabama
Louisville Medical College		(1891)	Indiana
Tulane University		(1908)	Alabama
College of Physicians and Surgeons, Baltimore		(1915)	Virginia
University of Maryland		(1914)	Maryland
Barnes Medical College		(1896)	Alabama
North Carolina Medical College		(1907)	N. Carolina
University of Oklahoma		(1914)	Oklahoma
Chattanooga Medical College		(1905)	Alabama
Tennessee Medical College		(1906)	Tennessee
University of Tennessee		(1894)	N. Carolina
Medical College of Virginia		(1896)	N. Carolina
University of Virginia		(1899)	Virginia
University of Moscow		(1906)	Virginia

Arizona January Examination

Dr. Allen H. Williams, secretary of the Arizona Board of Medical Examiners, reports the oral and written examination held at Phoenix, Jan. 1-2, 1918. The examination covered

10 subjects and included 100 questions. An average of 75 per cent. was required to pass. Of the 10 candidates examined, 8 passed, and 2, including 1 drugless healer, failed. The following colleges were represented:

College	Year Grad.	No. Licensed
PASSED		
Arkansas Industrial University	(1884)	1
College of Physicians and Surgeons, Los Angeles	(1908)	1
University of California	(1912)	1
University of Georgia	(1904)	1
Rush Medical College	(1916)	1
University of Louisville	(1915)	1
Baltimore Medical College	(1913)	1
University of Minnesota	(1906)	1
FAILED		
Chicago College of Medicine and Surgery	(1917)	1

Book Notices

STUDIES IN THE ANATOMY AND SURGERY OF THE NOSE AND EAR. By Adam E. Smith, M.D. Cloth. Price, $4. Pp. 157, with 45 illustrations. New York: Paul B. Hoeber, 1918.

The understanding and successful treatment of diseases of the anatomically complex regions of the nose and ear are more than all else dependent on a close and clear understanding of the anatomy of these regions. The author of this work has made himself a careful and independent student of this necessary anatomy. His subject matter is practical regional anatomy, and his point of view is treatment, especially of local infections, with emphasis placed on surgical treatment. The anatomy of the nose is presented in a series of thirty-one full page octavo pen drawings from actual anatomic dissections, arranged largely to illustrate the practical problems of treatment. These drawings—and this is from a standpoint of general comparison well worth mentioning—are large enough, so well drawn and so clearly notated as to be really valuable. The anatomy of the ear is presented in thirteen similar clear and useful drawings. The text is in part simply descriptive of the anatomy presented in the illustrations, and in part made up of terse and direct statements of practical suggestions, facts and aids to treatment, presented from the author's point of view. These suggestions are sometimes new and valuable; others may be open to criticism; all are stimulating. The so-called "postural treatment" of otitis media is, for example, well worth careful consideration. The volume is a useful adjunct to the more complete works, whether to the experienced specialist or to the more general student of these difficult anatomic regions.

POSTGRADUATE MEDICINE. Prevention and Treatment of Disease. By Augustus Caillé, M.D., F.A.C.P., Consultant to Department of Pediatrics, New York Post-Graduate Medical School and Hospital. Cloth. Price, $6.50 net. Pp. 1023, with 178 illustrations. New York: D. Appleton & Co., 1918.

In this book the author tries to present the treatment of almost all of the "so-called internal derangements." He includes not only the conditions that are strictly in the domain of the internist, but also diseases of women, gonorrhea and its complications in men, dermatology and dental disturbances. There are chapters on bedside and office technic, on minor ailments, and on the emergencies of general practice. The scope of the book is so wide that to do justice to the innumerable subjects mentioned would require a work much larger; but in a volume the size of this, much that is of value could be mentioned if proper balance were maintained. One of the defects is that too much stress is laid on subjects which, strictly speaking, should find little space in a work intended as a therapeutic guide. The author has succeeded in presenting a compilation of facts, in catalogue style, consisting of quotations from various authors and board of health bulletins, and numerous facts gleaned from a vast experience, but he has failed in convincing the reader as to what is the proper course to follow in the treatment of many of the conditions he describes.

The physician of the present time who aims to be scientific should refrain from recommending the use of proprietary medicines of doubtful value, or drugs, the place of which can be taken by official or well-established preparations. The author mentions Angostura Bitters, Lactobacilline, Papoid, Iron Tropon, Iodotropon, Peptomangan and Horsford's Acid Phosphate as of value in various conditions. Surely, these recommendations were not necessary. There are innumerable shotgun prescriptions recommended throughout the book. More than a page is devoted to the Salisbury diet as of value in gout, diabetes, arteriosclerosis, "rheumatism," epilepsy and dyspepsia.

Under gastro-intestinal diseases, the author speaks of combined hydrochloric acid as an intestinal antiseptic. This is certainly not in accord with the known facts. He refers to hyperchlorhydria as the irritative stage of chronic gastritis, and speaks of chronic indigestion with excessive pains after eating as a disease entity, rather than as a syndrome. These cases are now recognized as either gastric or duodenal ulcer, or reflex disturbances from some other part of the abdomen, as the gallbladder and the appendix, and should be treated as such after the diagnosis is made, rather than relieved by morphin and cocain, as he recommends. The reference to "weak and strong stomachs," and "congestion of the liver being induced by gastric or intestinal indigestion, or constipation," harks back to the time of the backwoods physician.

The use of digitalis in auricular fibrillation, in which it is of the greatest value, is given scant mention. The reviewer does not agree with the author in advising 10 grains of calomel to patients with uncompensated heart lesions. It seems that the prostration and depression incident to the profuse diarrhea that results far outweigh the depleting value of the drug. The author fails to speak of the sedative effect of bromids in anginal states, which Sir James Mackenzie recommends so highly. Why mention blood pressure at all if diastolic pressure is omitted altogether, and the reader referred to the circular of instructions accompanying the instrument, for the method of using it? Certain inaccuracies or misconceptions, as the diagnosis of mitral regurgitation on the presence of a systolic murmur only, or the constancy of an irregular pulse late in aortic regurgitation, or the statement that diastolic murmur is sometimes heard in aortic regurgitation, have found a place in this book.

There are many commendable features, such as the large, legible print, many valuable suggestions in the sections on pediatrics, infectious diseases, tuberculosis and syphilis, and many hints for the busy practitioner in the sections on minor ailments and emergency measures. On the whole, however, it does not seem as though the book will fill a long needed want, for either the student or the practitioner.

Medicolegal

Hospital and Drunkenness of Employee Under Workmen's Compensation Act

(Hahnemann Hospital v. Industrial Board et al. (Ill.), 118 N. E. R. 767)

The Supreme Court of Illinois, considering this case on an appeal on a certificate of importance, holds that the Appellate Court erred in holding, as a question of law, that the Hahnemann Hospital was not bound by the provisions of the workmen's compensation act. The case was begun with an application by the widow of a former chief engineer of the hospital to recover compensation for his death from a fall down a stairway into the basement. The record evidence disclosed that the hospital was a corporation organized under the general incorporation act of Illinois, not as a corporation for pecuniary profit, but as a charitable institution, for the purpose of conducting and operating a hospital and for treating the sick and injured. It owned and maintained a seven-story building in the city of Chicago, equipped with one freight and one passenger elevator, power driven, in which building the hospital was conducted. The building was also equipped with engines and high-pressure boilers, and a system of electric wiring and apparatus for lighting and signals throughout the building. The Supreme Court says that only two questions were presented for its consideration: (1) Was the hospital, at the time of the accident in question, engaged in an extra hazardous occupation, and thereby conclusively pre-

sumed to have elected to provide and pay compensation under the workmen's compensation act of 1913, in force at the time of the accident? And (2) Did the injury and resultant death arise out of and in the course of the employment?

The Appellate Court erred in finding that the hospital was not engaged, at the time of the accident in question, in an enterprise declared by the statute to be extrahazardous. Paragraph (*b*) of Section 3 of the workmen's compensation act of 1913 enumerates eight classes of occupations, enterprises or businesses as extrahazardous. Clause 8 of that paragraph enumerates one of the enterprises in the following language:

> In any enterprise in which statutory or municipal ordinance regulations are now or shall hereafter be imposed for the regulating, guarding, use or the placing of machinery or appliances, or for the protection and safeguarding of the employees or the public therein.

The second paragraph of Section 4 of the act specifically provides that hospitals and charitable corporations or associations shall be construed to be included in the term "employer."

Under the evidence in this case, the Supreme Court thinks it clearly appeared that the hospital, that is, the business or enterprise of conducting a hospital in the building, with the machinery, appliances and equipment therein used, was, in fact, extrahazardous within the meaning of the statute. Many of its employees were engaged in handling, repairing and operating the dangerous machinery, equipment and appliances, and were exposed to the dangerous agency or power which drove or made serviceable such equipment and appliances. Not only were those employees exposed to such dangers, but all other employees therein were more or less exposed to them. Extraordinary care and skill were required in the handling and management of such equipment and appliances to prevent serious accidents.

It was contended that the engineer was in an intoxicated condition and received his injury by reason thereof; but, under the evidence, he was not so intoxicated as to take him out of the course of his employment, though if he had been in such a state of intoxication as totally to incapacitate him from the performance of his work, the injury and death might properly be said to have arisen out of his condition rather than his employment. Before drunkenness can be said to bar a recovery under the workmen's compensation act, the employee must be so intoxicated, as shown by the evidence, that the court can say, as a matter of law, that the injury arose out of his drunken condition, and not out of his employment. Intoxication which does not incapacitate the employee from following his occupation is not sufficient to defeat the recovery of compensation, although the intoxication may be a contributing cause of his injury.

Privileged Communications

(*Brayman v. Russell & Pugh Lumber Co. (Idaho), 169 Pac. R. 932*)

The Supreme Court of Idaho holds, in this personal injury case, that the contention was without merit that, because the physician who attended the plaintiff was, in reality, hired by the defendant, the provision of the statute did not apply, which provides that a physician or surgeon cannot, without the consent of his patient, be examined in a civil action as to any information acquired in attending the patient which was necessary to enable him to prescribe or act for the patient. Nor did the plaintiff waive the privilege by testifying that he followed the physician's advice. The defendant offered to prove that during the time the physician was attending the plaintiff he stated one morning that during the night before he dreamed he was falling out of bed, and in trying to catch himself he hurt his arm, and he thought he had thrown it out of place; that the physician said it would be necessary to operate on the arm, but the plaintiff refused to submit to an operation and stated that, if the physician would take the arm off so he could recover more from the defendant, he would consent, and when the physician insisted on an operation he refused, saying that he intended to get a life pension out of the defendant. The offer of proof was rejected on the ground that the physician was precluded from so testifying by reason of the statute quoted, and it is clear to the court that the testimony sought to be elicited was within the spirit and purpose of the prohibition of the statute.

Society Proceedings

COMING MEETINGS

Am. Assn. of Electro-Therapeutics and Radiology, Boston, Sept. 10-12.
Am. Assn. of Obstetricians and Gynecologists, Detroit, Sept. 16-18.
American Association of Railway Surgeons, Chicago, Oct. 16-18.
American Public Health Association, Chicago, Oct. 14-17.
Am. Roentgen Ray Society, Ft. Oglethorpe, Ga., Sept. 4-6.
Colorado State Medical Society, Estes Park, Sept. 9-11.
Delaware State Medical Society, Wilmington, Oct. 8.
Indiana State Medical Association, Indianapolis, Sept. 25-27.
Kentucky State Medical Association, Louisville, Sept. 3-6.
Missouri Valley Medical Society, Omaha, Sept. 19-20.
New Mexico Medical Society, Albuquerque, Oct. 7-8.
Ohio State Medical Association, Columbus, Oct. 1-3.
Pennsylvania State Medical Society, Philadelphia, Sept. 23-26.
Utah State Medical Association, Salt Lake City, Sept. 10-11.
Vermont State Medical Society, Burlington, Oct. 10-11.
Virginia State Medical Society, Richmond, Oct. 22-25.
West Virginia State Medical Association, Harpers Ferry, Oct. 1-3.
Wisconsin State Medical Society, Milwaukee, Oct. 2-4.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Anatomy, Philadelphia

July, 1918, **24**, No. 2

1 Equivalence of Different Hematopoietic Anlages. Grafts of Adult Spleen on Allantois and Response of Allantoic Tissues. V. Danchakoff, New York.—p. 127.
2 Thymus So-Called: IV and Ultimobranchial Body of Cat (Felis Domestica). F. W. Stewart Ithaca, N. Y.—p. 191.
3 *Giant Cells of Hemopoietic and Osteolytic Foci. H. E. Jordan, Charlottesville, Va.—p. 225.

3. **Giant Cells of Bone Marrow.**—Jordan's studies showed that the giant cells of the marrow of young bones include two physiologically distinct types, hemogenic and osteolytic. These agree in being multinucleated and in possessing originally a basophilic cytoplasm, which gradually becomes oxyphilic. The hemogenic giant cells or polykaryocytes originate from hypertrophied hemoblasts (megakaryocytes) by a process of direct division of the polymorphous nucleus (basket nucleus) of transitional polymorphokaryocytes. They are essentially multiple hemoblasts, comparable to the blood islands of the yolk sac, and may differentiate erythrocytes intracellularly under certain conditions, apparently such as call for increased hemopoietic activity. The giant cells of this type have the same origin, structure and fate (varying with functional demands) in the yolk sac and the red bone marrow. There accrues no unequivocal evidence that polymorphokaryocytes (megakaryocytes) and the hemogenic polykaryocytes are phagocytic. The hypothesis is advanced that these cells represent an incidental phase of intense hemopoiesis. The polymorphokaryocyte (cell with basket nucleus; the megakaryocyte of the usual descriptions) is the precursor of the multinucleated polykaryocyte; but this does not necessarily mean that certain megakaryocytes may not become specialized to serve as sources of origin of blood platelets, according to the conclusion of Wright.

The osteolytic giant cells (osteoclasts of Kölliker) originate from the marrow reticulum by a process involving the aggregation of nuclei within larger cytoplasmic masses, and secondary fusion with other portions of the reticulum and with osteoblasts. The nuclei may increase in number to a slight extent by mitotic division. During later stages osteoclasts arise also by fusion of young, only slightly differentiated, osteoblasts. Osteoclasts may incorporate besides reticular cells, also hemoblasts, osteoblasts and encapsulated bone cells, possibly in part as a phase of their phagocytic (osteolytic) function. There is no direct genetic relationship between the potentially hemogenic giant cells (polykaryocytes) and the osteolytic giant cells or osteoclasts. The latter may, however, during their early stages of differentiation, produce also blood granulocytes and possibly hemoblasts. The osteoclasts eventually disintegrate and are not retrans-

formed into marrow reticulum. The polykaryocytes of the yolk sac and the red bone marrow are homologous elements, and are related to the hemopoietic function. The yolk sac contains no homologue of the osteoclast of developing bone.

American Journal of Syphilis, St. Louis

July, 1918, **2**, No. 3

4 *New Pathology of Syphilis. A. S. Warthin, Ann Arbor, Mich. —p. 425.
5 *Degenerative Chorea (Huntington's Type) with Serology of General Paresis. L. G. Lowrey and C. E. Smith, Boston.—p. 453.
6 Case of Extensive Osteoporosis of Skull in Negro. R. W. Shufeldt, Washington, D. C.—p. 462.
7 Syphilis of Epididymis without Involvement of Testicle; Report of Cases. H. Lisser and F. Hinman, San Francisco.—p. 465.
8 Syphilis of Stomach; Roentgenograms of Case. S. Tousey, New York.—p. 472.
9 Mental Disturbances and Syphilis. L. M. Gaines, Atlanta, Ga. —p. 474.
10 Vitiligo Syphilitica. M. L. Ravitch and S. A. Steinberg, Louisville, Ky.—p. 479.
11 *Antenatal Syphilis. A. J. Routh, London.—p. 484.
12 *Coagulo Reaction in Syphilis. J. A. Kolmer and I. Toyama, Philadelphia.—p. 505.
13 Syphilis in Detroit as Economic and Social Factor. R. C. Jamieson, Detroit.—p. 519.
14 Arsphenamin Icterus. K. I. Sanes, Pittsburgh, and M. Kahn, New York.—p. 529.
15 *Toxicity of Various Preparations of Arsphenamin. J. C. Sargent, Milwaukee, Wis.—p. 537.
16 Use of American-Made Arsphenamin. H. S. Baketel, Brooklyn. —p. 544.
17 *Intravenous Injections of Sodium Iodid in Massive Doses in Obstinate Syphilis. R. C. Howard, New York.—p. 550.

4. **New Pathology of Syphilis.**—The gumma is not the essential typical lesion of old or latent syphilis. It is a relatively rare formation; and the great majority of cases of syphilis run their course without the formation of gummatous granulomas. Warthin says that the new pathology of syphilis is based on the demonstration that the essential tissue lesion of either late or latent syphilis is an irritative or inflammatory process, usually mild in degree, characterized by lymphocytic and plasma cell infiltrations in the stroma particularly about the blood vessels and lymphatics, slight tissue proliferations, eventually fibrosis, and atrophy or degeneration of the parenchyma. These mild inflammatory reactions are due to the localizations in the tissues of relatively avirulent spirochetes. Syphilitic inflammations of this type occur in all tissues and organs; but are most easily recognized in the nervous system, heart, aorta, pancreas, suprarenals and testes. The syphilitic is a spirochete carrier. Syphilis tends to become a mild process; but at any time the partnership between the body and the spirochete may become disturbed, and tissue susceptibility or virulence of the spirochete become increased so that the disease again appears above the clinical horizon. Immunity in syphilis depends on the carrying of the spirochete. The disastrous effects of syphilitic infection usually require a period of years for their development. The pathologic diagnosis of syphilis is essentially microscopic.

5. **Degenerative Chorea with Serology of General Paresis.**—Two cases are presented in detail. One, originally diagnosed acute mania, showed choreatic movements and dementia for eighteen years before death, the serology of paresis being discovered two years before death. The necropsy shows characteristic lesions of paresis plus endarteritic changes; general cell devastation and gliosis, perhaps more marked in the basal ganglia; and certain changes of an uncertain character (in part postmortem?). The second case seems to represent a case of conjugal paresis; with chorea and dementia for about four years, with marked conduct disorder and certain depressive ideas. With the exception of the negative blood Wassermann, the serology is typical for paresis. The authors believe that such cases prove the importance of performing spinal fluid tests in all psychopathic patients—certainly in all with any organic disease. Choreatic paresis is apparently rare, judging by the small number of cases reported, and these are apparently the only cases in the literature in which serologic tests have established the diagnosis. Apparently, the prognosis for duration of life is good; intensive therapy should accordingly yield good results.

11. **Antenatal Syphilis.**—This paper consists of a series of suggestions which appear to Routh to explain logically some of the difficulties which now prevent a clear understanding of antenatal syphilis. Routh believes that the granules are the result of the spirillolysis or breaking-up of the *Spirochaeta pallida*. The granules are infecting agents, being, in fact, spirochetes in the granule stage. They are able to develop into the mature spirochete in a suitable environment, or may become biologically inactive and remain latent for short or long periods. Chorionic (syncytial) ferments are present at the point of interdigitation of the fetal and maternal portions of the placenta. Their action is primarily trophoblastic to enable the delicate chorionic villi to penetrate the uterine mucosa and to open up maternal blood vessels, so that the ovum may find for itself a resting place with nutritive blood spaces around it. As a result of the destructive action of the ferments on the maternal tissues so-called syncytiotoxins are formed, but appear to be at once neutralized by so-called syncytiolysins. If not thus neutralized, maternal and fetal toxemia may become present. The chorionic ferments (or their derivatives) are suggested as being capable of exercising their destructive properties on the *Spirochaeta pallida*, which may either be in the maternal intervillous or fetal intravillous tissues, both of which are in intimate relations with the syncytial cells of the villi whence the ferments arise. This destructive action of the chorionic ferments on the spirochete breaks it up into granules.

Routh further suggests that during pregnancy it is the continued action of the chorionic ferments on the granules which may render them latent and biologically inactive, and perhaps in a few cases may destroy them. After the pregnancy, when the chorionic ferments cease to be present in the tissues of the mother and child, the granules, wherever they may be, may develop into mature spirochetes. The success or failure of the chorionic ferments to protect the mother and child from spirochetal infection would depend on (*a*) the virulence of the infection, which tends to diminish, owing to the presence of more maternal antibodies, with each successive pregnancy, and (*b*) on the source of the infection. Infection is probably most difficult to arrest in a "mixed transmission" or in a true maternal infection, where attempts at infection of the embryo would be constantly proceeding throughout the pregnancy. It is probably least severe and most easily countered by the ferments when the primary infection is paternal, for it may then be a single infection only, and probably not capable of repetition if the primary infection be arrested. The Wassermann reaction of mother and child appears to be negative if infection has been by the spirochetes in their granule stage so long as the granules remain biologically inactive and the mature organism is absent.

12. **Coagulo Reaction in Syphilis.**—The coagulo reaction is based on the observations of Hirschfeld and Klinger that syphilitic serum inhibits or delays the formation of thrombin and consequently of coagulation, by an inactivating influence on cytozyme, one of the essential elements in thrombin formation. The reaction has been found a highly delicate and constant characteristic of syphilis, although in Kolmer's experience slightly less sensitive than the Wassermann reaction conducted with acceptable alcoholic extracts of heart muscle reenforced with cholesterin. The coagulo reaction is regarded as specific for syphilis, but the authors suggest that further investigations with the serums of persons suffering with various other diseases are required before a definite statement is warranted.

15. **Toxicity of Preparations of Arsphenamin.**—In compiling the comparative results obtained by the administration of the different preparations of arsphenamin, Sargent excluded all cases in which more than 0.6 gm. or less than 0.3 gm. of the drug was used because patients receiving more than 0.6 gm. of any of the preparations seldom escaped reaction, whereas no reaction was noted in those receiving less than 0.3 gm. of any of the preparations. The French preparation "arsenobenzol billon" was used in but a limited number of cases because of the expense and difficulty with which it was procured. The use of the new arsphenamin ceased after the first batch of five doses because of its apparent extreme toxicity.

Of seventy-seven doses of diarsenol there resulted 35 per cent. gastro-intestinal reactions and 1.05 per cent. vasoparetic reactions. Of ninety-seven of "arsenobenzol" there resulted 5 per cent. gastro-intestinal reactions and no vasoparetic reactions. Of nineteen doses of "arsenobenzol billon" there resulted 25 per cent. gastro-intestinal reactions and no vasoparetic reactions. Of five doses of the new arsphenamin there resulted 60 per cent. vasoparetic reactions.

Sargent concludes that gastro-intestinal reactions resulting from the administration of arsphenamin are largely the result of impurities in the drug. Vasoparetic reactions resulting from the administration of arsphenamin are entirely the result of impurities in the drug. Of the four preparations of arsphenamin commonly used in this country, the Philadelphia preparation "arsenobenzol" has the preference by being distinctly the least toxic.

17. **Intravenous Injections of Sodium Iodid in Syphilis.**—Howard's report is based essentially on original work on a private patient with laryngeal syphilis, who in spite of intensive antisyphilitic treatment extending over a number of years suddenly developed progressive features, which, unless relieved, would infalliby have required tracheotomy. The gumma in this case did not respond readily to antisyphilitic therapy, in fact proved highly resistant, for during two years and seven months the patient received thirty doses of arsphenamin, 0.6 gm. each, intravenously, besides several hundred injections of mercury salicylate, in ½ to 1 grain doses suspended in oil, at intervals of three to five days; the obligatory mercury inunctions; mixed treatment by the mouth; many courses of potassium iodid by the mouth, reaching at times several hundred drops daily; one series of about twenty intramuscular injections of sodium cacodylate in full doses. In spite of this intensive treatment, given according to the customary plan and pushed to the limit of tolerance, with intervals of freedom from all medication, the sign and symptoms of progressive malignant syphilis finally supervened in May, 1916. Without material benefit the patient received frequent intravenous doses of arsphenamin and intramuscular injections of mercuric chlorid solutions, in doses of ¼ to ½ grain.

June 24, 1916, initial dose of 30 grains increasing each dose by 5 grains, up to a minimum of 335 grains. Suitable veins were very hard to find after a large number of these injections had been applied, and the treatment often had to be interrupted for a few days, until thrombotic veins had again become permeable, or perivascular swelling had subsided. After an interruption a smaller dose was usually given, about 200 grains as a rule, rapidly increasing the size of the dose until the treatment had to be stopped for lack of available veins. Iodism was only exceptionally responsible for a temporary suspension of the treatment; its symptoms were those of gastric irritation and essentially mild, in form of regurgitation of small quantities from the stomach. A cutaneous eruption of petechial spots was occasionally noted. In a general way the treatment was remarkably well borne in spite of the enormous daily dosage. It is also noteworthy that the patient preferred the intravenous method of administration, as the iodids given this way did not upset the stomach. During the entire course of iodid treatment mercury and arsphenamin were likewise administered to the limit. However, within a few weeks after starting the intravenous iodid medication, improvement was so obvious that the patient could eat, sleep and work in comparative comfort. Furthermore his voice considerably improved and this amelioration continued right up to the time when all intravenous iodid injections were stopped for want of veins.

This patient received 125 injections; amount of sodium iodid, 26,013 grains or about 3¾ avoirdupois pounds, or 1,685.7 gm.; average dose for 125 doses, 208 grains, or 13.5 gm.; average dose per day for entire period of 224 days, 116 grains, or 7.5 gm. Solutions of from 5 to 10 per cent. strength were correct, below 5 per cent. too bulky; above 10 per cent. too irritating. The optimum strength for universal use is 8 per cent. A stock solution of sodium iodid in distilled water should be made so that 1 minim of the solution contains 1 grain of the salt and this carefully filtered. Of this solution the dose is measured and water (preferably freshly distilled) is added to make the desired strength and a moderate excess to allow for evaporation. The solution is then sterilized by boiling in a beaker or flask for ten minutes, and cooled to 105 F. when it is ready for injection.

American Review of Tuberculosis, Baltimore

July, 1918, **2**, No. 5

18 *Treatment of Tuberculosis. G. E. Bushnell.—p. 259.
19 Methuselah and Life in Open. V. Y. Bowditch, Boston.—p. 276.
20 *Tuberculosis; Its Treatment and Mistreatment. J. V. Wright, Dallas, Texas.—p. 285.
21 *Comparison of Wassermann Reaction and Serochemical Reaction of Bruck in Tuberculosis Sanatorium. H. J. Corper and L. Fiala, Chicago.—p. 290.
22 *Results of Wassermann Reaction in Tuberculosis Sanatorium. H. J. Corper, Chicago.—p. 294.

18. **Treatment of Tuberculosis.**—Bushnell says that too often he has seen very serious harm from tuberculin, as employed by others, to be enthusiastic concerning its use. Tuberculin is most helpful to those who need help least. Advanced cases of tuberculosis are very seriously injured by it. But the rather numerous class of sanatorium patients who have little or no active tuberculosis, their disease being of a chronic though often diagnosticated as acute, type are able to tolerate it sometimes apparently to their advantage. Those physicians whose practice is mostly confined to cases of well marked manifest pulmonary tuberculosis are rarely enthusiastic advocates of its use. An accurate diagnosis is indispensable. Tuberculin in the hands of the ignorant is a terribly deadly weapon. Bushnell believes that cases of genuinely active tuberculosis are more often harmed than benefited by it and is of the opinion that better results in the long run for the average patient are attained by the physical treatment. He is therefore opposed to its use in army hospitals.

20. **Treatment and Mistreatment of Tuberculosis.**—When we make a diagnosis and tell the patient to go West and rough it, or to go home and go to bed, or to go to some institution without looking into the problems which confront us in sending a patient to an institution and without selecting the institution fitted to this particular case; as for instance, to send a patient with a definite uncompensated heart lesion to an altitude of 4,000 or 5,000 feet; or tell the patient that he will be well in two or three months, or we will cure him for a certain amount of money, or we can give him medicine or use any other one measure that will cure him, Wright says we are mistreating tuberculosis.

21. **Wassermann and Bruck Reaction in Tuberculosis.**—The Bruck serochemical reaction for syphilis according to Corper and Fiala is unreliable as a test to supplant the Wassermann reaction in the tuberculosis sanatorium. As far as could be noted by the authors in their observations it gives no data of value. Of a total of fifteen definitely positive (plus, plus or stronger) Wassermann reacting serums, six gave a negative serochemical reaction; of a total of 213 negative Wassermann reacting serums, 113 (53 per cent.) have a positive Bruck test. The percentage of positives was greater among the moderately advanced (63 per cent.) and far advanced (70 per cent.) cases than among the nontuberculous (33 per cent.), questionably tuberculous (46 per cent.) and incipient (36 per cent.) cases. There was no predisposition for patients with temperature (persistently over 100 F.) to give a positive Bruck reaction (of forty-five cases) with temperature, eighteen gave negative tests). Patients dying of pulmonary tuberculosis within three months of the time of making the test were found to give indiscriminately positive and negative reactions. The activity of the case was likewise of no significance.

22. **Tuberculosis and Wassermann Reaction.**—As a result of the routine serologic blood examination of 1,395 men and 1,399 women residents of the City of Chicago Municipal Tuberculosis Sanitarium, a definite positive Wassermann reaction was obtained in 7.2 per cent. of the men and 5.8 per cent. of the women. The incidence of a definite positive Wassermann reaction, so far as this could be determined, did not reveal any striking differences from the above figures resulting from a classification of the cases according to different ages or different nationality or race.

Annals of Surgery, Philadelphia

July, 1918, **68**, No. 1

23 *Use of Fascial Transplants in War Surgery. L. C. Balleuil and W. D. Jack, France.—p. 1.
24 *Ventriculography Following Injection of Air into Cerebral Ventricles. W. E. Dandy, Baltimore.—p. 5.
25 Laminectomy and Regional Anesthesia. C. H. Frazier, Philadelphia.—p. 12.
26 *Advisability of Totally Excising Both Pectoral Muscles in Radial Operation for Cancer of Breast. W. Meyer, New York.—p. 17.
27 Interrelation of Stasis, Ptosis and Inertia of Intestinal Tract. J. C. O'Day, Honolulu, Hawaii.—p. 27.
28 Case of Obliteration of Common Bile Duct Following Operation. M. Behrend, Philadelphia.—p. 32.
29 Clonorchis Sinensis (Liver Fluke) Infection of Gallbladder and Biliary Passages. F. C. Watson, Lexington, Tenn.—p. 34.
30 Case of Fused Kidneys. B. Lipshutz and C. Hoffman, Philadelphia.—p. 39.
31 Surgical Importance of Supernumerary Arteries to Kidney. D. N. Eisendrath, Chicago.—p. 53.
32 Plastic (Reconstructive) Surgery of Hand and Forearm. A. B. Gill, Philadelphia.—p. 555.
33 *Fibrin Paper as Hemostatic Agent. S. C. Harvey.—p. 66.

23. **Use of Fascial Transplants in War Surgery.**—The authors have used fascia lata grafts in cases of extensive scars of the forearm or leg involving either the flexor or extensor tendons and thus producing disability have been the most common. Muscle hernias have also been repaired in this way; aponeurotic grafts have been applied to the dura and in one case the method was utilized in repairing a hernia of the synovial membrane of the knee joint. Balleuil and Jack believe that the method is applicable to the whole field of plastic surgery and is of great value in rebuilding muscle sheaths and in repairing muscle hernias. Cases are cited.

24. **Ventriculography Following Injection of Air Into Cerebral Ventricles.**—The outlines of the lateral cerebral ventricles can be sharply outlined by the roentgen ray if air is substituted for cerebrospinal fluid. The injection of air into the ventricles had no deleterious effects in twenty cases in which it was employed by Dandy. Ventriculography has already proved of great practical value in the diagnosis and localization of many intracranial conditions. The author found it invaluable in internal hydrocephalus. The method has thus far been used only in children.

26. **Total Excision of Both Pectoral Muscles in Breast Cancer.**—The total extirpation of both pectoral muscles in every case of radical operation for cancer of the breast, Meyer holds is logical and, as a surgical procedure, clearly indicated, particularly in view of the possible lymphatic arrangement. The author urges that it should be adopted as a routine procedure.

33. **Fibrin Paper as Hemostatic Agent.**—Bleeding from multiple small vessels, from vessels in delicate tissue and from sinuses can be controlled by the application of fascia, muscle or fibrin. The peculiar advantage of the use of these tissues is that they can be left within the wound, thus avoiding the danger of stripping off the coagulum. A method is described for converting fibrin into a fabric easily kept, sterilized and applied. This material is found to correspond in effectiveness and amenability to absorption with the untreated fibrin, while being far more adaptable to the operating room technic.

The fibrin of beef blood is passed through a fine meat chopper and washed in running water for twenty-four hours in order to free it of the other constituents of the blood. It is then shredded by prolonged trituration in a mortar and shaken up with about twice its volume of water. This is thrown, while in suspension, into a tray with a screen bottom, over which is laid a single layer of ordinary surgical gauze. With a slight oscillatory movement of the tray, the water runs through, leaving an even layer of fibrin deposited on the gauze. This is covered with another layer of gauze and turned out on a towel, being handled gently so as not to tear the fibrin film. The whole is placed between two towels of double thickness and introduced between two pressure plates. These plates are approximated with as great pressure as possible by the tightening of the bolts inserted at their edges. The apparatus is placed in an autoclave and treated with steam pressure of 15 to 20 pounds for thirty minutes. On removing the film it is found to be "welded" into a sheet of paper-like material from which the gauze can be stripped off readily leaving a rough surface. The thickness of this sheet depends on the amount of fibrin thrown on the screen.

This fibrin paper is quite elastic and possesses a surprising amount of tensile strength. When damp it can be handled like any fabric, but on exposure to the air it dries, becoming hard and somewhat brittle. When placed in water it rapidly softens and resumes the appearance shown on its first removal from the autoclave. On heating, water is first driven off and then the material burns much as dose horn and with the peculiar odor of burning horn or hair. Boiling or further sterilizing with steam has no effect on it, thus enabling one to sterilize it repeatedly. It is not soluble in alcohol, ether, chloroform or acetone, these substances drying it and rendering it brittle. Strong acids and alkalies cause it to swell and they slowly digest it while the action of these substances in dilution is scarcely perceptible.

It is possible by using a pressure cylinder to turn out blocks of the material which can be cut directly with the mictrotome so as to form stamps some 15 to 18 microns in thickness. When dried these blocks can be drilled or turned on a lathe in much the same manner as can be done with hard rubber. For the purpose of hemostasis this substance was tried as cut by the microtome in quite thin sheets, and in the paper form as removed from the press with the thickness of about 0.5 mm. For use in the operating room the paper is made as thin as possible, is sterilized in the autoclave for one hour and then allowed to dry, in which condition it can be stored for months. When desired a piece is dropped in the instrument sterilizer and boiled for ten minutes, after which it is kept in sterile salt solution until used. In this way one has always at hand an absorbable, sterile material, easily handled, with which this type of bleeding can be controlled and which can safely be closed within the wound.

Archives of Pediatrics, New York

July, 1918, **35**, No. 7

34 *Use of Thick Farina in Treatment of Pyloric Stenosis. L. W. Sauer, Chicago.—p. 385.
35 *Diseases that Can, with Assurance, Be Referred to Absence of, or Derangement with Function of, Ductless Glands. A. S. Root, Raleigh, N. C.—p. 401.
36 *Use of Carbo Animalis in Diarrheas of Childhood. O. W. Rowe, Duluth, Minn.—p. 406.
37 Standardized Physical Examinations. W. R. P. Emerson, Boston.—p. 411.

34. **Thick Farina in Pyloric Stenosis.**—Thick farina feedings have been given by Sauer in twelve cases of pyloric stenosis. In all but one case the effect of the thick feedings was striking. In eleven of the twelve patients the vomiting soon stopped, although in most of the cases the peristaltic waves and the tumor (where palpable) persisted for weeks or months after the vomiting ceased. Eleven of the twelve patients are now in excellent health, the remaining one dying of bronchopneumonia eight weeks after the vomiting had ceased. Of the twelve babies all but two were on the breast when the vomiting began. Eleven of the infants were taken care of in the home, six by the mother without any trained assistance. Most of the infants were seen at the age of from 6 weeks to 2 months. Sauer points out that at this time the feeding of a thick cereal may become quite a tedious task. Inasmuch as the consistency of the cereal seems to be the all-important factor in this treatment of pyloric stenosis, it is very necessary to use the utmost care in the preparation of the food. One part of farina to 7 parts of fluid (3 parts of milk to 4 parts of water) boiled in a covered double boiler for an hour usually makes a cereal of proper consistency. Such a food consists of about 15 per cent. cereal. Sugar and salt may be added.

A satisfactory way of giving the food is to have the required amount of the prepared food in a cup immersed in a shallow saucepan containing hot water. By taking a little of the warm, thick cereal on the end of a narrow tongue depressor it can very easily be placed far back into the open mouth and scrapped off with another tongue depressor. A great deal of patience is usually required during the first week as the young infant often keeps the thick cereal in the mouth for some time before swallowing. An hour or more is

often required to give a feeding of a few tablespoonfuls. Two to eight tablespoonfuls of such cereal may be given six or eight times a day. In cases in which breast milk is available, one or more tablespoons of the cereal may be given before the nursing or bottle breast milk feeding. If such a regime proves unsuccessful four thick cereal feedings and three breast milk feedings may be tried for a few days. If this fails to stop the vomiting and loss of weight, then all feedings should consist of the thick farina. In very severe cases such a procedure is probably the most satisfactory. Any available breast milk can be added to the cereal provided the consistency of the food is not diminished thereby. The child should then be placed on the right side. During the critical weeks of the treatment most of the infants were handled very little, and seldom taken up during or after a feeding. The child usually rested on a rather firm pillow of soft feathers. This precaution was taken to reduce to a minimum the contraction of the recti and other abdominal muscles. The child is placed on the right side for a few hours after each feeding. Stomach washings probably have some value in freeing the stomach of residual food and mucus. A 1 per cent. sodium citrate solution was used.

35. **Ductless Glands and Disease.**—The only diseases which, in Root's opinion can, with assurance, be attributed to an absence or derangement of function with the ductless glands are those referable to the thyroid, that is, myxedema, hyperthyroidism and exophthalmic goiter. He admits that there is some evidence, through scientific experimentation, to support the view that Fröhlich's syndrome is due to a derangement with function of the pituitary gland. The clinical evidence in favor of giving pituitary gland in cases of diabetes insipidus, Root says, is sufficient to warrant its administration, but prescribing preparation of the endocrine glands for obscure disorders, cannot be too strongly condemned. A plea is made for the early recognition of cretinism, in order that the best end-results may be obtained from early thyroid treatment.

36. **Carbo Animalis in Diarrheas of Childhood.**—In a series of cases of enteritis no other medicine was given by mouth than carbo animalis. Water was given frequently in large amounts, and, in cases showing marked dehydration, proctoclysis was attempted. All patients except those received in a comatose condition were fed at the end of twelve to twenty-four hours. The foods were as follows: breast milk, 16 per cent.; some modification of malt soup, 62 per cent.; protein milk, 12 per cent., and whole milk mixtures in 10 per cent. of the cases. Protein milk was not given for its absorptive powers. Cereals and toast were offered early to older children. The most obvious effect of the charcoal therapy was the checking of the frequent watery stools; 74 per cent. of the patients passed formed stools by the fifth day, and 14 per cent. more by the sixth day. In cases in which the lesion was in the lower bowel, it was not unusual to have a movement consisting of blood and mucus, immediately after the formed stool.

Rowe states that the appearance of a formed stool does not indicate that the disease process has been stopped entirely, but it does show that the diarrhea, the most serious symptom, has been controlled. The effect of the therapy on vomiting was excellent. In former years lavage has been done occasionally. With charcoal therapy this measure was found unnecessary. That all toxins are not absorbed is indicated by the hyperpyrexia and other symptoms of toxemia, in some cases persisting for many days after formed stools are obtained. Three very mild cases treated on general hygienic principles, without laxatives or medicine, recovered as promptly as cases of similar duration treated with carbo animalis, but lost more in weight, due undoubtedly to a more restricted diet.

Rowe emphasizes that the preparation of charcoal used and the dosage are of the utmost importance. The dosage should be relatively large, given regularly at least every four hours. The coal may be given in water or oatmeal gruel; it should not be given in gelatin where peristalsis is active. The only bad effect which could possibly be laid to this treatment was an increase in the number of cases complicated by stomatitis. The chief advantages of this treatment are: 1. Vomiting is readily controlled. 2. The frequent loose, watery bowel movements are definitely checked, thus preventing dehydration. 3. An early return to a full diet is permitted. 4. Convalescence is shortened.

Journal of Laboratory and Clinical Medicine, St. Louis

July, 1918, **3**, No. 10

38 *Tolerance and Immunity. J. L. Marchand, Prinsapolka, Nicaragua, C. A.—p. 571.
39 *Pneumonia and Meningitis. P. G. Woolley, Camp Greene, N. C.—p. 602.
40 *Relation of Peptone to Biologic Reactions. W. A. Jamieson, Indianapolis.—p. 614.
41 Recommendations of Committee on Standard Routine Method for Isolation and Identification of Hemolytic Streptococci from Throats, Sputums and Pathologic Exudates. W. L. Holman and others.—p. 618.
42 Simplified Gas Analysis. J. J. R. Macleod, Cleveland.—p. 622.
43 Simple Method of Measuring Antisheep Amboceptor Content of Human Serum and Correcting for It in Wassermann Tests. J. J. Seelman, Milwaukee, Wis.—p. 626.

38. **Tolerance and Immunity.**—Marchand believes that protein sensitization and bacterial immunity, apparently antipodal, are in reality identical. Vaccines are protein sensitizers. When proteins are subjected to the action of disrupting agents, as when introduced parenterally, there is the possibility of the chemical nucleus being set free more or less completely, and to the extent that it is detached it becomes a poison. The protein poison is not specific. The tolerance which may be secured by the protein poison is not specific. The sensitization developed by a protein is specific, but is not due to the poisonous group of the protein. The poison elaborated in all infectious diseases is the same.

39. **Pneumonia and Meningitis.**—Woolley's analysis of cases leads him to conclude that pneumonia and meningitis are due to invasion of bacteria which are inhabitants of the upper respiratory tract, that the conditions under which they become more or less widespread or epidemic are not understood, and that the only method for preventing their spread is to apply antiseptic methods to the mouth and nasopharynx. The application of such methods should be put into practice in advance of the season of the year during which the incidence of respiratory diseases rises.

40. **Relation of Peptone to Biologic Reactions.**—With the outbreak of the war and the consequent curtailment of the supply of Witte's peptone, the question of the production of potent diphtheria toxin became acute. American peptones already on the market, while satisfactory for the production of tetanus toxin and allowing a profuse growth of *B. diphtheriae*, did not give a satisfactory toxin production. Other American peptones were soon available which gave a diphtheria toxin of low potency. Of the most of the American peptones one lot might give a toxin of 400 to 600 minimum lethal dose per mil, while the next lot might give no toxin at all. To overcome this discrepancy, Jamieson says, a peptone was made up as nearly as possible of the same composition as Witte's peptone, with some variation, however, which there was reason to believe would make it a better peptone than Witte's. Toxin was produced with this peptone, using as comparison Witte's peptone and American brands. In all cases the new peptone gave the most potent toxin, and Witte the next highest. The toxin produced with the special peptone has tested as high as 1,000 minimum lethal dose per mil; it consistently tests 500 to 600 minimum lethal dose per mil. The Witte peptone has tested about 500 minimum lethal dose per mil, while the American brand has made toxin fluctuating between 100 and 300 minimum lethal dose per mil. Experiments were made to determine whether the peptone employed in the toxin production had a detrimental effect when injected into animals; or whether the peptone was such that the growth of the diphtheria organism would produce by-products which were injurious when injected into animals. The results of these experiments indicated that care should be exercised in the selection of peptone for the production of diphtheria toxin, inasmuch as the peptone used may influence the physical condition of the animal injected with the toxin. The peptone employed in the production of diphtheria toxin influences the potency of the toxin and what

is of greater importance the ratio of the constituents of the toxin as shown by the ratio of the minimum lethal dose to lethal plus dose. The peptone used in the production of antigens employed in immunologic tests will influence the results of the tests.

Medical Record, New York

August 10, 1918, **94**, No. 6

44 Physical Basis of War Shock. H. Wakefield, New York.—p. 223.
45 Treatment of Empyema by Carrel-Dakin Method at War Demonstration Hospital, Rockefeller Institute for Medical Research. G. A. Stewart, New York.—p. 236.
46 Federal Effort to Promote Science of Veterinary Medicine. R. W. Shufeldt, Washington, D. C.—p. 237.
47 Torn Cervix vs. Uterine Inertia. E. R. Corson, Savannah, Ga. —p. 239.
48 Importance of Rest After Meals. P. Getson, Philadelphia.—p. 241.

New York Medical Journal

August 10, 1918, **108**, No. 6

49 Blood and Soul. J. Wright, Pleasantville.—p. 225. To be continued.
50 Etiology en Echelon. (By Degrees). W. P. Cunningham, New York.—p. 227.
51 Acute Coryza; Intranasal Complications, Diagnosis and Therapeutics. E. Danziger, New York.—p. 234.
52 Food Value of Bread. R. McD. Allen, New York.—p. 236.
53 Immunity in Tuberculosis. M. Staller, Philadelphia.—p. 240.
54 Experience with Class in Malnutrition. J. L. Kantor, New York. —p. 241.
55 Examination of Recruits for Tuberculosis. R. C. Matson, Portland, Ore.—p. 245.

Psychiatric Bulletin, Albany, N. Y.

October, 1917, **2**, No. 4

56 *Study of Retention in Korsakoff Psychosis. D. Wechsler, Corona. —p. 403.
57 Statistical View of Mental Diseases in New York State Hospitals. H. M. Pollock.—p. 452.
58 *Study of Mental Content of Epilepsy. L. P. Clark, New York. —p. 483.

56. **Study of Retention in Korsakoff Psychosis.**—Wechsler is of the opinion that the prime cause of the retention defect in Korsakoff psychosis is the patient's inability to form new associations.

58. **Study of Mental Content of Epilepsy.**—A study of the mental content, both conscious and unconscious, in epileptics, Clark says, demonstrates: (1) the depth of the unconscious regression, (2) the special types of conflict which the epileptic has and the way he tries to solve them, (3) the specific type of primary defect in his endowment. Its therapeutic value in addition to the above is (4) to furnish a specific point of analytic attack by simple explanatory talks, and (5) to show more definitely the type of special education which should be adopted for each individual patient.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Tuberculosis, London

July, 1918, **12**, No. 3

1 Diagnosis and Treatment of Hemoptysis in Cases of Pulmonary Tuberculosis. N. Robertson.—p. 103.
2 Tuberculosis and Toxemia. E. G. Glover.—p. 117.
3 Treatment of Pulmonary Tuberculosis. J. E. Bullock.—p. 127.
4 Housing of Consumptive Families. J. T. Neech.—p. 129.

British Medical Journal, London

July 20, 1918, **2**, No. 3003

5 *Treatment of Asthma by Peptone. A. G. Auld.—p. 49.
6 Epidemics. J. Burnford.—p. 50.
7 Nasopharyngeal Conditions in Meningococcus Carriers. F. J. Cleminson.—p. 51.
8 Two Cases of Vulvitis Caused by Accumulated Secretion of Tyson's Glands. J. D. Malcolm.—p. 55.
9 Value of Artificial Pneumothorax in Arrest and Prevention of Hemoptysis in Pulmonary Tuberculosis. Z. P. Fernandez. —p. 55.
10 Future of Medical Profession. B. Dawson.—p. 56.

July 27, 1918, **2**, No. 3004

11 Broken Sleep. G. Rankin.—p. 77.
12 Buffer-Salts of Blood. W. M. Bayliss.—p. 78.
13 Part Played by Bone Graft. M. Mamourian.—p. 79.
14 Report on Influenza Epidemic of 1918. O. H. Gotch and H. E. Whittingham.—p. 82.
15 Physicians' Problem. A. L. Jones.—p. 85.

5. **Treatment of Asthma by Peptone.**—Auld has had good results in the treatment of asthma from the intravenous injection of peptone. He dissolves the peptone as far as possible in normal saline (made up to three-quarters volume) by slightly agitating and warming at 37 C. Then add 1 mil of a 2 per cent. solution of sodium carbonate for each ⅓ gm. (5 grains) peptone. This ensures the requisite degree of fineness of the suspended portion. Make up to volume with normal saline, adding 0.25 per cent. phenol as a preservative. Care is to be taken in adding the alkali, as any excess may cause racemization of the peptone, rendering it inactive. Peptone No. 2 is similarly prepared, the alkali being employed in this case to neutralize its acidity.

As regards the dosage, it is only possible to make a general statement, as variations may be necessary. When the main attacks, whether occurring singly or more or less broken up, occur at fairly pronounced intervals, a limited number of measured doses is usually sufficient. Should slight attacks persist, the dose may require to be increased. A feeling of chilliness and discomfort indicates that the limits have been overstepped. On the other hand, the dosage must be reduced when the attacks present great frequency and irregularity. In such the antianaphylactic mechanism is weak, or, in other words, the immunity reserve is small and will only tolerate gentle stimulation. Experience alone can enable one to decide the dosage, according to the symptoms and progress of the case; also, patients differ very considerably in their response to peptone. Generally speaking, the initial dose in all cases may be fixed at 3 decimils (5 m.); increase by 2 decimils (roughly 3 m.) every fifth day, until six injections have been given. Three or four more injections are to be given, employing in each the same dose as that given in the sixth injection. To this rule, however, there are exceptions. No reaction appreciable by the patient occurs. At any time during the course modifications in the dosage may be called for, as already indicated. In the case of children but a very slight reduction in the dose is necessary. No injection is to be given during attacks, and, when the latter occur at long intervals, begin the treatment about three weeks before one is expected. In all cases the diet should be low, and easily digested.

Bulletin of Canada Army Medical Corps, Ottawa

July, 1918, **1**, No. 4

16 Transplantation of Bone in Repair of Cranial Defects. C. H. Gilmour.—p. 50.
17 Cerebrospinal Fever. F. B. Bowman, F. Adams and R. N. James. —p. 52.
18 *Report on Series of Gassed Cases. S. G. Ross and A. T. Henderson.—p. 58.
19 Early Diagnosis and Treatment of Primary Syphilitic Lesions. A. B. Jackson.—p. 60.

18. **Report of Gassed Cases.**—Seventy-two per cent. of the men seen by Ross and Henderson complained of soreness in the eyes at some period. Of these, 47 per cent. showed conjunctivitis on admission. Irritation of the nose and the throat was a frequent effect. A history of sneezing shortly after being gassed was given by 55 per cent. of all patients. A large proportion of these men had coryza (forty-six out of the last 153 cases examined). Most of these had a profuse watery discharge from the nose. Pharyngitis was commonly present. The larynx was commonly affected in 63 per cent. Another common symptom was that of pain in the chest; 57 per cent. of the men complained of this. Cough was present in 80 per cent. of the cases; bronchitis in 15 per cent.; dyspnea in 27 per cent.; cyanosis in 6 per cent. Beyond quickening of the pulse in some cases, there was no evidence of the heart being affected. Vomiting was present in 60 per cent. of the cases; 10 per cent. had nausea without vomiting. Abdominal pain was complained of by 19 per cent. It was nearly always referred to the epigastrium, and was stated to be of a steady burning character. Only one man had crampy pains. Diarrhea occcurred in 2 per cent.

Twenty-four per cent. of the men showed definite skin lesions. One half of these had blistering. The remainder

showed first degree burns only; 78 per cent. of the men complained of headache at one time or another. Three men gave a history of collapsing or fainting. A number of men complained of weakness and pains in the muscles. One man only showed definite jaundice. Forty-three men showed a temperature of 99 or over on admission, and of these thirteen had a temperature of over 100 F. Bronchitis was present in ten of these cases, and the fever of the remainder might be accounted for by laryngitis or burns; 11 per cent. had a pulse of 90 or over, under half of these associated with fever. A few cases only showed increased respiratory rate. The vast majority of cases seemed to be due to the Yellow Cross (phosgene) gas.

Dublin Journal of Medical Science

July, 1918, **146**, No. 559

20 Two Cases of Mediastinal Abscess of Traumatic Origin; Operation; Recovery. H. L. W. Woodroffe.—p. 1.
21 Hygiene from Soldier's Point of View. W. F. Wicht.—p. 7.
22 Ireland's National Health; Analysis of Cases Occurring in Southern Seaboard District and Its Lessons. M. F. Moloney—p. 17.

Glasgow Medical Journal

July, 1918, **90**, No. 1

23 Change of Type in Disease. E. Duncan.—p. 1.
24 *Gastro-Intestinal Toxemia as Cause of Nephritis. W. Watson. —p. 17.

24. **Gastro-Intestinal Toxemia as Cause of Nephritis.**—Watson cites three cases in which gastro-intestinal disease caused a secondary nephritis. In each of these three cases the arresting feature has been the abnormality in the gastro-intestinal canal. In the first there was pyorrhea, dilatation of the stomach, with a history of inflammation of the stomach, and the tongue bore distinct evidence, from the enlargement of the papillae, that there was an abnormal condition of the ileum. The second patient had septic ulcers in her mouth and on her tongue, and a constant discharge of purulent material from her nose, which in all probability, through being discharged into the pharynx, was the cause of the septic condition which appeared in the upper part of the alimentary canal. The discharge from this, on being swallowed would ultimately infect the intestine itself. The third patient had equally arresting gastro-intestinal symptoms, with physical signs which point, beyond doubt, to a gastro-intestinal cause. He emphasizes the importance of recognizing this etiologic relationship because of the treatment to be adopted and because of its bearing on prognosis.

Journal of Laryngology, Rhinology and Otology, London

July, 1918, **33**, No. 7

25 Congenital Appendages or Teratoid Tumors of Nasal Septum. A. B. Kelly.—p. 193.
26 Unit of Sound: Stefanini's Phonometer with Ball and Sounder. D. Gradenigo.—p. 197.
27 Maxillary Antrum in Mastoiditis. H. Bodkin.—p. 200.
28 Intrinsic Cancer of Larynx and Operation of Laryngofissure. I. Moore.—p. 202. To be continued.

Lancet, London

July 20, 1918, **2**, No. 4951

29 War Injuries of Eye. W. T. Lister.—p. 67.
30 *War Deafness with Special Reference to Value of Vestibular Tests. P. McBride and A. L. Turner.—p. 73.
31 *Gunshot Fractures of Femur. P. Turner.—p. 74.
32 *Treatment of Fracture of Shaft of Humerus by Splints. C. A. Morton.—p. 77.
33 Future of Medical Profession. B. Dawson.—p. 83.

30. **War Deafness and Vestibular Tests.**—From analysis of a large number of cases which they examined McBride and Turner conclude that concussion deafness is generally due to some organic change. The prognosis is usually bad. The results of the vestibular tests can only be utilized in conjunction with information derived from other sources. Thus, if the patient shows other hysterical symptoms, vestibular tests may perhaps under certain circumstances help diagnosis; to state that they do more than this is misleading and dangerous.

31. **Gunshot Fractures of Femur.**—In cases in which "sagging" was present to a marked degree, and in cases of fractures of the upper and lower part of shaft with typical displacements Turner has made use of a method in which the straight Thomas' splint and the ordinary methods of obtaining extension and preventing rotation are used, and which can be employed in conjunction with any method of suspending or supporting the splint. The principle of this method, which has been called "wire suspension and traction," is that a loop of silver wire is manipulated round the free end of the displaced fragment, which is then pulled into position, and maintained so by attaching the wire to a rigid arch passing over the limb between the two bars of the splint. The splint is first put into position, supports are arranged, and strong extension is obtained by a spring. The limb is now held so that the foot shows a position of slight external rotation, and the lateral supports which control rotation are applied. Both the extension and lateral supports can be readjusted, if thought necessary, after the wire suspension has been carried out. The wire employed is ordinary silver patella wire.

Where there is an oblique fracture, or where the comminution is not severe, the end of a suitable length of wire may be twisted to form a loop. The ends of the fragments are usually already denuded of soft parts, and can be felt by a finger in the wound. The wire loop is then introduced and with the help of the finger is insinuated round the free end of the displaced fragment. In the event of the free end of the fragment not being sufficiently exposed, a periosteal elevator may be used to clear it for a short distance, but extensive baring is neither necessary nor desirable. The displaced fragment is now pulled up into position, and when the finger shows this to be accomplished, the wire is attached securely to the rigid arch, which has been sterilized and fixed in the proper position. If the pull is made obliquely and if the wire is fastened in this direction there will be no danger of the loop slipping off, that is, if a backwardly displaced lower fragment of a supracondyloid fracture is being treated the pull should not be straight forward, but also slightly in a downward direction toward the knee. There is also, as a rule, some lateral displacement of the fragments, the upper being abducted and the lower adducted. This must also be taken into consideration when drawing the fragment into position and fixing the wire.

In fractures of the lower and middle thirds of the shaft of the femur, the attempt should be made to draw the lower fragment into line with the upper, and hence the single wire around the lower fragment will, as a rule, be sufficient. In some cases of sagging, however, where the upper fragment is abducted and the lower adducted or the reverse, excellent alinement may be obtained by two wire loops, one drawing the lower fragment forward and outward and the other the upper fragment forward and inward. Backward traction of the upper fragment in fractures in this region is seldom required, and in a few cases in which Turner has employed it in this region the wire has soon been found to be unnecessary and has been removed.

If there is much comminution all completely detached fragments should be removed and the wire or wires should pass round the extremity of one or both main fragments, including, if possible, any large piece of bone which is not quite loose. In some comminuted fractures it may be possible to pass a wire round all the fragments and cross the wire again in front so as to bind them together and at the same time to raise the bone to its correct position. Efficient drainage having been secured, attention is directed to the extension, and, if necessary, the spring and the lateral supports are readjusted. The supports beneath the thigh should also be tightened up so as to raise the soft parts and take some of the weight of the limb off the wire. After sagging of the fragments has been corrected there may be a sagging of soft parts due to edema and the dropping back of muscles and soft tissues which gives a very similar outline to the thigh, though a roentgen-ray examination may show a perfect alinement. The presence of the wire causes no irritation or increase of sepsis.

The shortest time the wire has been left in position is two weeks, and in this case, where there was some cutting into the muscle and a little oozing of blood, there was no recurrence of the displacement. It is better to allow three or four weeks, or even longer, to elapse before removing the wire,

as its presence causes no trouble; in one case it was left for eight weeks. The amount of bone lost and the roentgenographic evidence of union will guide as to the advisability of removal. If the ends of the loop can be seen the wire may be cut and pulled out at an ordinary dressing, but if out of view in the deeper part of the wound nitrous oxid anesthesia will be desirable.

32. **Fracture of Humerus Treated by Splints.**—There is only one way, says Morton, in which a fracture of shaft of humerus can be absolutely fixed, and that is against the chest wall. By using the combination of a posterior and an internal splint, fixed together and fixed by plaster to the chest, a stable support is provided for the arm when the patient is sitting up or lying down.

Medical Journal of Australia, Sydney

June 29, 1918, **1**, No. 26

34 Spinal Bone Grafting. T. E. L. Lambert.—p. 529.
35 Case of Rat-Bite Fever in Sydney. O. R. P. Muller.—p. 531.
36 Uncommon Inguinal Hernia. J. B. Nash.—p. 532.

Archives Médicales Belges, Paris

January, 1918, **71**, No. 1

37 *Staphylococcus Infection. P. Nolf, J. Bossaert and A. Colard. —p. 1.
38 The Pedagogic Pretensions of Psychanalysis. P. Voivenel.—p. 19.
39 *Disability from Hemianopsia. E. Rasquin.—p. 32.
40 Present Status of Oculocardiac Reflex. H. Fredericq.—p. 46.

37. **General Staphylococcus Infection.**—The symptoms may range from a mild fever for a few days to grave septic pyemia. The staphylococci were sometimes found in the urine in the twenty-four cases described, but they were usually rare and scant. In some cases they were found in the urine up to weeks and months after apparent recovery, but there were no traces of kidney or bladder lesions at any time. The staphylococcus was seldom found in the blood. When a man with some cutaneous lesion containing staphylococci is taken suddenly with fever, headache and pains in the bones, especially in the legs, and nothing pathologic can be found in heart, lungs, intestine, kidneys or nervous system, the assumption of general staphylococcus infection seems justified. Most of the men recovered in a few days under bed rest and light diet. It seemed that 3 gm. of hexamethylenamin in twenty-four hours had a favorable effect. In the more rebellious cases, 5 cg. of methylene blue was given with each 50 cg. dose of the hexamethylenamin. The fever kept high in one case for weeks until a series of five intravenous injections of 8 c.c. of a 10 per cent. solution of peptone were made on alternate days. Then quinin was substituted for the peptone for nine days, and then the peptone was resumed for six days. This patient was in the hospital for nearly seven weeks. In some of the other cases the staphylococci did not disappear from the urine until after a series of injections of peptone, with or without an autogenous vaccine.

39. **Disability from Hemianopsia.**—Rasquin is chief of the eye department of the Belgian hospital at Havre. He comments on the large number of cases of hemianopsia encountered among the wounded. He classifies them according as the individual requires or not the aid of another person. If the disability in the latter group is accepted as 100 per cent., in the other—with retention of central vision—it should be 120 per cent. The German laws grant 125 per cent. A gap in the visual field is more disabling the closer it is to the point of fixation. He gives a colored plate showing the eight different parts of the visual field that may be lost, and the relative disability from each.

Bulletin de l'Académie de Médecine, Paris

June 25, 1918, **79**, No. 25

41 *Ear Disturbances in Aviation. A. Castex.—p. 458.
42 *Resumption of Work by the War Cripples. J. Gourdon.—p. 459.
43 *Spirochete of Pseudotuberculosis. F. Barbary.—p. 461.

41. **Ear Disturbances in Aviation.**—Castex describes the various sensations experienced by aviators when they rise rapidly to 12,000 or 15,000 feet, the altitude at which the airmen usually attack enemy airplanes. The barometer registers from 47 to 41. The ear suffers particularly from the differences in pressure, but the disturbances can be warded off if the men in going up practice Valsalva's experiment, strong expiratory effort with mouth and nose closed, and in descending practice Toynbee's experiment, exhausting the air from the tympanic cavity by swallowing with the nose and mouth closed. See also Paris Letter, Aug. 24, 1918, p. 679.

42. **Resumption of Self-Support by War Cripples.**—Gourdon is chief of a rehabilitation center, and reports his experience with 5,014 maimed soldiers with grave and incurable lesions. Of these, 73 per cent. have resumed their former occupation with or without prostheses; 27 per cent. required vocational training. Only 30 per cent. were crippled in the arms. War cripples seem to lack will power more than others, and they tire more readily. Persons accustomed to till the soil formed 62 per cent. of the total, and they return to farm work more readily than others. Fully 85 per cent. of the farmers and 48 per cent. of the farm hands spontaneously returned to farm work after being supplied with prostheses for the purpose. The loss of an arm does not incapacitate more than 25 per cent., and disarticulation of the shoulder more than 50 per cent. Amputation at the thigh causes about 50 per cent. incapacity. The incapacity from loss of a leg is not over 10 per cent. in industrial work. With loss of a hand or arm, the amount of work turned out increases of course with practice, and hence it is advisable to place the men early in workshops. Very good office positions have been found for the maimed capable of such work, and their interest and progress in training were remarkable. They realized in nine months what the others required sixteen for. He advises a premium for rapid acquiring of skill based on the professional skill acquired compared to the extent of the lesion.

43. **Pulmonary Spirochetosis.**—Barbary remarks that it is only comparatively recently that the mycoses have been differentiated and successful treatment applied. Before this the cases had been labeled syphilis or tuberculosis, and all treatment on this basis had been futile. Spirochetoses are now having this same experience. Many cases of supposed pulmonary tuberculosis are probably a spirochetosis. A number of such have been encountered at the observation station in his charge. In one case the diagnosis had been "chronic bronchitis, probably tuberculous, with hemoptysis." Spirochetes were found swarming in the sputum. No examination should be considered complete unless, along with the bacteriologic examination, the sputum, urine and blood are examined for spirochetes. They show up readily with blue or phenolthionin. Isolation is imperative, as this spirochetosis is extremely contagious both by direct contact and by the dried sputum. The cuspidors should be kept half full of an antiseptic fluid, and the mouth should be rinsed with hydrogen peroxid or chloral.

Nourrisson, Paris

July, 1918, **6**, No. 4

44 *Prophylaxis of "Children's Diseases." A. B. Marfan.—p. 193.
45 Ventilation of Contagious Ward. J. Renault.—p. 212.
46 *Meningococcus Meningitis in Infants. M. Lavergne.—p. 215.

44. **Prophylaxis of Acute Contagious Diseases.**—Marfan reiterates that isolation is the basis of prophylaxis for acute infectious diseases of children, including the eruptive diseases, whooping cough, mumps and cerebrospinal meningitis. He discusses the technic for prophylaxis of each of these in turn, emphasizing in particular the special measures required in measles. He adds that even if we only get measles postponed till after the age of 5 or 6, this would suppress the mortality almost completely. When there has been exposure to measles, the child can be left unmolested for ten days thereafter, during the phase of incubation. The tenth day the child should be isolated and watched for signs of measles. If no symptoms develop, the isolation can be arrested in five days, that is, the fifteenth day after the exposure to the disease. Not merely the doubtful but also the suspected cases of exposure should be managed in this way. If a child develops a "cold" and shows slight signs of malaise—when cases of measles are known in town—he should be isolated at once for five days. If no eruption appears, he can then be released. Every child with an eruption and fever should be isolated for two or three days. In case of measles, the isola-

tion need not be kept up for more than five days unless there is concomitant pneumococcus or streptococcus infection, in which case isolation for this is required in addition. Terminal disinfection is not required in measles except for a complicating pneumonia. When an epidemic of measles breaks out in a school, the children should not be given a vacation; this would help to spread the disease. All that is necessary is to isolate the sick, the suspects and the doubtful cases, and keep the others under surveillance. The regulations in France exclude a child from school for sixteen days after the beginning of the eruption. This is not necessary unless there are complications. For twenty-five years the physicians of children's hospitals have been pleading to have the services organized, both in the hospitals and in the dispensaries, to avoid propagation of acute contagious diseases.

46. **Meningitis in Infants.**—In the course of this discussion of the etiology, symptoms, diagnosis and treatment of meningococcus meningitis in infants, Lavergne remarks that lumbar puncture in an infant is simple and absolutely harmless. The child should be placed on its side, one hand bending the head back so far as possible; the other hand, placed behind the knees, presses the thighs against the abdomen. If no fluid drips from the needle introduced into the subarachnoid space, he slips a guide into the needle. If this fails, he repeats the puncture in the interspaces above, which can be done in infants up to the tenth and eleventh dorsal vertebrae. He advises to withdraw as much of the cerebrospinal fluid as possible; the results can be only good, as this relieves the centers from compression, gets rid of toxic fluid, and leaves room for the curative serotherapy. From 20 to 40 c.c. of fluid can generally be withdrawn in this way.

The first antiserum, he declares, should be polyvalent. The method of rapid agglutination will disclose the special type involved so that the specific antiserum can be injected the next day. There can be no inconvenience in injecting 20, 30 or even 40 c.c. of the antiserum. On the other hand, there is grave danger if an adequate amount of the antiserum is not given. The injections should be repeated as long as the cerebrospinal fluid shows meningococci and polynuclear cells. It should also be the routine practice to repeat the lumbar puncture from four to eight days after apparent recovery. This is the only means to detect an incipient recurrence. If the child's condition is very serious, Lavergne advocates injecting the antiserum directly into the ventricle, even when there is nothing to indicate walling off of the meningitis. He asserts that there is no danger, introducing the needle at the lateral angle of the fontanel and pushing it downward and inward, the tip pointing toward the external auditory meatus on the other side. The sedative influence of hot baths may be utilized. In case of complicating joint or iris trouble, the antiserum must be injected locally. Injection of the antiserum directly into the vitreous body has been followed by complete retrogression of iridochoroiditis. As early treatment here is of prime importance, ophthalmoscopic examination should be a routine measure with meningitis in infants. Serotherapy shows more failures in infants than in older children and in adults. Even in the apparently favorable cases in infants the diagnosis should be reserved. Some have reported good results from a fixation abscess or vaccine therapy. Those who fear anaphylaxis can certainly ward it off by giving a small injection of the antiserum every week.

Paris Médical

May 25, 1918, **8**, No. 21

47 *Clinostatic Bradycardia. H. Vincent.—p. 401.
48 *Crippling Attitudes after War Wounds. André-Thomas.—p. 402.
49 *Prophylaxis of Tuberculosis in Italian Army. N. Sforza.—p. 406.
50 Sodium Cacodylate Cannot Take the Place of Arsphenamin, etc., in Treatment of Syphilis. H. Maréchal.—p. 410.
51 Roentgen Localization of Projectile. Loupié.—p. 413.

47. **Combination of Bradycardia, Low Blood Pressure and Cyanosis of Hands and Feet.**—This combination Vincent has encountered comparatively frequently in children and young people. The bradycardia is of what he calls the clinostatic type, that is, instead of the normal drop of 8 or 9 beats when the subject reclines after standing, the drop is of 15, 25 or 30 beats, so that the pulse recumbent is only 58, 52 or 40. The arterial pressure is also extremely low, and the hands and feet are cold and clammy and inclined to be blue. In twenty-nine such cases there was a history of rheumatism, hereditary or personal. This peculiar triad of symptoms disappeared after marriage or pregnancy or as the active genital period was reached, and this suggested that endocrine disturbances might be responsible. This assumption was sustained by finding the thyroid abnormally small; sometimes, one lobe seemed to be almost completely missing, or the whole gland felt soft and flabby. Thyroid treatment promptly restored conditions to clinically normal. He supplemented the thyroid extract with potassium iodid and, in case of girls, with ovarian treatment.

48. **Abnormal Attitudes from Defective Regeneration of Nerve.**—The abnormal attitude or contracture may develop at once after a war wound of the nerve or not until after several months. In the latter case there is evidently defective regeneration of the nerve, the fibers going astray. Two cases are described to show the multiple factors that may be involved, and that must be guarded against or eradicated.

49. **Prophylaxis of Tuberculosis in the Italian Army.**—Sforza has charge of the *centre diagnostique de la tuberculose* at Rome. He relates that the call to arms poured the entire male tuberculosis morbidity of the whole country into the army. This led to two mistaken conceptions, namely, that tuberculosis was rapidly increasing, and that this increase was due to the war. Time and experience have refuted both of these apprehensions, especially the experiences at the diagnosis centers which were organized in January, 1917, for each army corps. Here the advanced cases are sifted out and turned over to the civil authorities. The curable cases are sent to army sanatoriums for a six months' course of treatment. By means of these diagnosis centers, tuberculosis can be detected in its incipiency and the proper treatment be applied immediately. "The best prophylaxis of tuberculosis is the early diagnosis of the disease . . ." The fact that the men dismissed from the army on account of advanced tuberculosis are passed over individually to the civilian authorities has placed Italy in the forefront of all nations as regards compulsory notification of tuberculosis. To have accomplished so quietly such a tremendous reform in the campaign against tuberculosis is not the least of the benefits to be credited to the military authorities in this field of action. The civil government has only to keep on with the task."

Legislation is now pending to provide a pension for every soldier discharged on account of tuberculosis, who has taken part in the fighting. The plan is to have the pension revised from time to time by competent authorities to conform to the man's condition, increasing it if necessary, reducing it if conditions improve. The diagnosis center at Rome is a regular hospital with 170 beds. The men are under observation there from ten to fifteen days, and the roentgen record of each individual is kept in the archives. There are already 450,000 radiographic records of the kind, a valuable material for specialized study, such as no other institute that he knows of possesses to date. It embraces the whole history of pulmonary tuberculosis. These diagnosis centers are to be maintained after the war, although several centers may be merged into one, and they will include civilians in their scope.

Presse Médicale, Paris

June 27, 1918, **26**, No. 36

52 *Wounds of Cervical Sympathetic. André-Thomas.—p. 329.
53 *Provisional Prostheses after Amputation. G. Louvard.—p. 331.
54 Quinin Collobiase in Malaria. F. Roux.—p. 333.

July 8, 1918, **26**, No. 38

55 *Study of Heart Disease. H. Vaquez.—p. 345.
56 *Tracheocele. P. Coudray and Guisez.—p. 348.
57 *Reflex Symptoms in Epilepsy. M. Olivier and G. Aymès.—p. 349.
58 *Meningococci and Parameningococci. Romme.—p. 350.

52. **Wound of Inferior Cervical Ganglion.**—Thomas reports the findings on vasomotor, thermic and circulatory tests in cases of injury of the sympathetic nerve in or near the inferior cervical ganglion.

53. **The Provisional Prosthesis.**—Louvard expatiates on the advantages of providing a peg leg or arm hook from the earliest possible moment, on account of the moral as well as the

physiologic effect. It also avoids the use of the "pernicious crutch," and provides the orthopedist with a live, healthy stump to work on.

55. **The Heart.**—Vaquez calls his article an introduction to the study of the heart. He traces through the ages the development of our knowledge in regard to the physiology and pathology of the heart. When digitalis has been successful for a time and then fails, although the clinical picture seems unmodified, some new factor has evidently intervened, and this, he says, is probably the loss of the tonicity of the myocardium. Physiologically speaking, we know that digitalis is not actually a tonic for the heart as is generally believed. In this case we must use some stronger tonic for the heart. This action is possessed by strophanthus to a notable degree. This carries on the task where and when digitalis fails.

56. **Tracheocele.**—Coudray and Guisez give an illustrated description of a case of tracheocele. Three of the rings of the trachea had ruptured during a shell explosion. The soft depressible tumor looks like a goiter, but there is no resistance to the finger at this point. The ordinary acts of life are done without trouble, but there is intolerable pain at any more intense effort. The man has become accustomed to the lesion in the seventeen months since the explosion, and declines operative intervention. The hernia might spontaneously retrogress if the trachea were to be incised below to divert the circulation of the air. The prognosis of tracheocele is grave, as a rule, aside from the tracheoceles of pregnancy which usually retrogress spontaneously. Any intercurrent bronchitis or catarrhal trouble might aggravate conditions.

57. **Reflex Symptoms with Epilepsy.**—Olivier and Aymès report a case in which during the epileptic seizure the Babinski toe sign was pronounced on the right side, while in the left foot there was no Babinski but in its place there was adduction of the foot, the inner margin being raised. Stimuli applied to the soles of the feet during the seizure elicited constantly these motor responses. A theory is advanced to explain the mechanism of these phenomena.

58. **Serotherapy of Meningitis.**—Romme emphasizes the necessity for beginning treatment with a bivalent antiserum that acts on the two most common strains. If bacteriologic differentiation is possible—which is generally the case in forty-eight hours—then an antiserum addressed to the "reigning meningococcus" should be used. Otherwise the bivalent should be continued.

Correspondenz-Blatt für Schweizer Aerzte, Basel

June 22, 1918, **48.** No. 25

59 *War Psychoneuroses. F. Naville.—p. 817.
60 *Cancer Statistics. J. Aebly.—p. 829.

59. **War Psychoneuroses.**—Naville describes his experience with inveterate cases of psychoneuroses at an advanced neuropsychiatric center. He emphasizes the close resemblance between neuroses and psychoneuroses due to exhaustion and emotional stress and those for which organic disease or intoxication is responsible.

60. **Fallacies in Cancer Statistics.**—Aebly comments on the superior oversight to be obtained when the course of cancer cases, from the beginning of disturbances to death, is compared in the operative cases and in those left to a spontaneous course. Still better oversight is realized when, in addition, the figures are compared with those of the relative life expectancy for the age. Surprising findings are obtained in this way. The advantage in favor of the cases with operation does not become manifest until from the fourth year onward, so far as cancer of the uterine cervix is concerned. Up to this period the operative cases show no longer survival than the cases with a spontaneous course—all estimated from the first symptoms of the malignant disease. Aebly remarks that so long as it is impossible to demonstrate any absolute lengthening of the period of survival in consequence of the operation, we have no right to affirm the life-preserving influence of operative measures. In the most favorable circumstances it is only a question of shifting the values. If a surgeon believes that it is better to sacrifice a whole series of women so that a very few may live a little longer, that is his lookout. It is a matter of opinion. Dividing the years of survival after the first manifestations by the life expectancy for the age, we obtain a quotient which permits comparison between the operative and the nonoperative cases. Recent literature on statistical lore with reference to cancer is analyzed, especially Müller's report on 125 cases of cancer of the cervix. The survival from the beginning of disturbances was much longer in the nonoperative cases; 100 per cent. of the latter were living after nine months and only 67 per cent. of the operative cases; at one year the figures were 67 and 57; at fifteen months 57 and 44; at two and a half years, 24 and 21; at three years, 19 and 15; at five years, 5 and 6. None of the inoperable cases survived beyond the fourth year, but 4 of the operative cases lived to the sixth and 3 to the seventh year.

Gazzetta degli Ospedali e delle Cliniche, Milan

May 26, 1918, **39.** No. 42

61 *Abdominal Wounds in War. F. Benoni.—p. 413.

May 30, 1918, **39.** No. 43

62 *Mercury Protects against Malaria. G. Cremonese.—p. 427.

June 2, 1918, **39.** No. 44

63 *Abdominal Wounds in War. E. Santoro.—p. 433.

61. **Abdominal Wounds.**—Benoni reports seven recoveries in eleven cases of abdominal wounds. The recoveries included one case in which the liver had been injured, one the large and one the small intestine, both in two, and one in which the wound involved both abdomen and thorax. One of the men came to the station on foot holding in his hands the lacerated abdominal walls and clamoring for an operation. This confidence in the surgeon's skill proved an important factor in the recovery in many cases. This was particularly evident in the case of a man with lacerations in the small intestine and the colon, from a shell wound eight hours before. Except for slight transient fever and tormenting thirst, recovery was uneventful. Benoni did not seek to remove the projectiles unless they were readily accessible, estimating that they would soon become encapsulated. In some of the cases with recovery the intestines showed that the men had eaten recently. In two other cases the aspect was that of injury of viscera but no lacerations could be found and recovery was soon complete. The chances of a favorable outcome grow rapidly less after the sixth or seventh hour from the wound. When the pulse is over 120, the outlook is grave, but it had reached 126 in some of his cases with recovery.

62. **Mercury Protects Against Malaria.**—Cremonese asserts that he knows of no instance of malaria being contracted by a man who has been taking thorough mercurial treatment for syphilis within a year. This has convinced him that saturation with mercury protects against malaria and cures it, once installed. By subcutaneous injection of mercuric chlorid he has succeeded invariably in curing rebelliously recurring malaria. His curative injections were with 4 c.c. of a 0.25 per cent. solution, that is, 0.01 gm. mercuric chlorid daily for ten days. Another series of ten injections is given after an interval of ten or fifteen days. This completes the immunization. In ordinary cases he gave the mercury by the mouth, 0.01 gm. for ten days for adults, and half this for children under 6. This is followed after an interval of ten days by another similar series to complete the immunization.

63. **False Abdominal Wounds.**—Santoro applies this term to wounds of the abdomen without laceration of viscera. In 101 of his 137 abdominal cases only the abdominal walls were injured. In the others some extraperitoneal organ was injured. He discusses the misleading clinical picture, as everything seems to indicate injury of the bowel. Shock is frequent even when merely the abdominal wall is injured, and there may be anemia from excessive hemorrhage. This clinical picture of the "*falsi addominali*" may be presented even with merely a wound of the thorax, not involving the diaphragm. Roentgen examination may prove misleading, as the path followed by the projectile may have been long and tortuous, so that an exploratory laparotomy may be the only resource.

Policlinico, Rome

June 30, 1918, **25**, No. 26

64 *Three-Day Fever. F. De Napoli.—p. 605.
65 Crippling of Foot after Slight Wound of Leg. F. Purpura.—p. 608.
July 7, 1918, **25**, No. 27
66 *Traumatic Paralysis without Organic Injury of Spinal Cord. P. Timpano.—p. 629.
67 *Early Suture for Factitious Abscesses. S. Menghetti and G. Aquilanti.—p. 632.
68 *Reapers' Keratitis. L. Alajmo.—p. 633.

64. **Three-Day Fever and Trench Fever.**—De Napoli presents arguments to sustain the view that trench fever and a febrile disease now widely prevalent in Italy are the same as the *febbre estive* or *febbre da pappataci*, three-day fever, sand-fly fever, barracks fever, drouth fever, malarial influenza—all these names having been applied to a sudden fever with headache, pains in muscles, joints and spine, usually accompanied by gastro-intestinal derangement, with complete subsidence of the fever the third day, but leaving pronounced asthenia for about a month. He refers to his previous publications on this three-day fever, which early attracted attention in military circles as troops in barracks were mainly affected, the first communication on the subject in Italy dating from 1888. De Napoli suggests that lice may be the hosts as well as sand flies, the more common transmitters of the disease. (A Lisbon exchange has recently presented similar arguments in favor of the like nature of the disease which has been epidemic in Spain, the so-called Spanish influenza, which has been prevalent also recently in Portugal.)

66. **Paralysis Without Organic Injury of Spinal Cord.**—Timpano refers to a case of crossed traumatic paralysis following a small shell wound of the back of the chest at some distance from the spine.

67. **Early Suture for Factitious Abscesses.**—Menghetti and Aquilanti are in charge of the service for the "surgical autolesioned," and they comment on the peculiarly protracted course of the abscesses and phlegmons which follow injection of benzin and gasoline for malingering purposes. There is great destruction of tissues but the lesion is practically sterile. They have shortened the course of healing materially by clearing it out and suturing it at once without draining. The stitches are removed the sixth or seventh day, the healing occurring by what might be called secondary primary intention. This shortens the course by months.

68. **Reapers' Keratitis.**—Alajmo warns that if soldiers are detailed to help in harvesting crops, any injury of the eyes from the work, such as reapers' keratitis, must be regarded as acquired in the service.

Riforma Medica, Naples

June 22, 1918, **34**, No. 25

69 *Finer Structure of Neuroglia. E. Rossi.—p. 482.
70 *The Small Heart of the Tuberculous. C. Guarini.—p. 485.
June 29, 1918, **34**, No. 26
71 *Interchange of University Professors between England and Italy. L. Bianchi.—p. 501.
72 Aneurysm of Aorta; Six Cases. O. D'Allocco.—p. 503.
73 Successful Removal of Sarcoma of Tonsil. A. Ajello.—p. 506.
74 Roentgen Findings with Pulmonary Tuberculosis. L. Coleschi.—p. 510.
75 Principles for Treatment of War Wounds of Bladder and Urethra. E. Aievoli.—p. 513.

69. **The Finer Structure of the Neuroglia.**—Rossi has found by Achúcarro's method of staining that the gliosomes and the glial fibrils seem to be always in inverse proportion to each other. This and certain other findings have convinced him that the fibrils of the neuroglia are derived from the glial plasma. His microscopic findings are to be illustrated in the detailed report of his research soon to appear in the *Revista italiana di Neuropatologia*.

70. **The Small Heart of the Tuberculous.**—Guarini has been constantly impressed in roentgen examination of tuberculosis suspects with the extreme frequency of small-sized hearts, and with their median location. The arch of the aorta was also relatively small with this hypoplasia of the heart in the 1,300 tuberculous soldiers he has examined with the roentgen rays. The heart was of the "drop" type in 13 per cent. Guarini suggests the possibility that infection with the tubercle bacillus may have been the cause of the hypoplasia of the heart, instead of the usual assumption that the small heart is what predisposes to tuberculosis. Roentgen examination of persons with this small vertical heart has always revealed tuberculous lesions in the lungs, even when there was nothing otherwise to suggest tuberculosis. The heart was of this small, median type in 68 per cent. of the 1,300 tuberculous men he has examined. His experience showed further that an angle of slant of from 25 to 55 degrees must be regarded as further evidence of hypoplasia in persons infected with tuberculosis. The "drop" heart has a similar significance.

71. **Progress of Science in Italy.**—Bianchi relates how Italy is waking to the knowledge that German science has been for years crushing out initiative and progress in Italy. Germans were given professorships, German scientific works flooded the country, and the authorities deferred to German influence with no encouragement for Italian science. Foreigners were incumbents even of the chairs of ancient history in certain Italian universities, and in their teachings belittled the achievements of the Latin races. The war has opened the eyes of Italy to this exploitation of the country by German science. To further the throwing off of the German yoke in science, the Board of Education in Great Britain recently invited representatives of the Italian universities to visit the English universities, and Bianchi's communication is a report of the trip. He emphasizes in particular the all-around training of the British university students, the close and constant relations between professors and students. When the students graduate, their minds are comparatively mature, and they are prepared not only for the practice of their profession but for citizenship as well. An interchange of lecturers and students is planned, and the study of English has already been introduced into some of the preparatory and professional schools in Italy.

Rivista di Clinica Pediatrica, Florence

May, 1918, **16**, No. 5

76 *Suprarenal Treatment of Children. A. Galvani.—p. 225.
77 *Tremor in Children. L. Sironi.—p. 238.
78 Welfare Work for Children and Nursing Mothers during the War. C. Comba.—p. 266.

76. **Epinephrin in Treatment of Children.**—Galvani remarks that the soft and elastic arteries in children and the integrity of the cardiovascular and other systems render epinephrin peculiarly effectual in pediatrics. It seems to have a general tonic and an antitoxic action as well as its direct vasoconstricting effect. He reviews the indications for it, as published by various writers, with their experience in different diseases and the doses used. Except in very urgent conditions, administration by the mouth is preferable. This is harmless while it avoids abrupt changes in the circulation. Its action is more protracted by the mouth, and it seems to stimulate the centers, possibly by way of the sympathetic system. The dose is from 10 to 30 drops of the 1 per thousand solution. When especially prompt action is necessary, it can be injected subcutaneously, from 0.5 to 1 c.c. Certain features of the action of epinephrin are still undecided, as, for instance, its effect on the musculature of the intestines. Lesné reported in 1912 that, injected into the rectum of rabbits, the animals died, but not so rapidly as when the same dose was injected subcutaneously. The same dose introduced into the stomach or small intestine seemed entirely harmless.

77. **Tremor in Children.**—Tremor as an isolated or predominant symptom of nervous disease in a child is very rare. Seroni states that only three cases were encountered among the thousands of children at the Rome children's dispensary, 1889 to 1915, and fifteen cases in the Naples children's clinic. He classifies tremors as physiologic or transient, result of organic nervous disease, of neuroses, hereditary, toxic or toxic-infectious, and occupational, and describes the special features of each. He gives the details of a typical case of continuous tremor in a breast-fed female infant of 14 months, affecting the limbs, trunk and head, sparing only the muscles of the face. The father was addicted to alcohol and the child had had gastro-intestinal disturbance and measles. The lumbar puncture fluid showed signs of a slight acute meningeal reaction, probably traceable to the intestinal disturbance and the general debility from the inherited taint. Lumbar

puncture in such a case has direct therapeutic value. In Cantieri's case, malaria was evidently responsible for the tremor. In older children tremor may develop on a basis of hysteria, usually after some fright or anger. Among the toxic tremors, the alcoholic is the most common, but he reports a case in which thyroid treatment was responsible for it. In conclusion he describes a case of tremor in a girl of 14 which has persisted for two years, without much improvement, rebellious to hospital or other treatment. The tremor affected only the legs, and was more of a clonic nature than true tremor, but the rhythmic coordinated movements seemed to exclude chorea, suggesting rather paramyoclonus. This diagnosis is sustained by the headaches and dizziness at times.

Rivista Critica di Clinica Medica, Florence

June 13, 1918, **19,** No. 28

79 *Nocturnal Asthma. C. Frugoni and S. Pisani.—p. 325. Commenced in No. 25, p. 289.

79. **Nocturnal Asthma.**—Frugoni and Pisani report the metabolic findings and results of various functional tests in fourteen persons with asthma, essential or secondary, and in two healthy persons. They were examined in twelve-hour periods, all after a similar test meal. The findings confirm the empiric assumptions as to the difference between the metabolism during the day and during the night. In the nine cases of asthma secondary to kidney disease, the findings testified to the marked impairment of the eliminatory functions during the night hours, the urea and the viscosity of the blood increasing, as also retention of chlorids in the tissues, while the cholesterol content of the blood drops.

Annaes Paulistas de Medicina e Cirurgia, S. Paulo

November, 1917, **8,** No. 11

80 *Multiple Intra-Uterine Fractures. R. Puech.—p. 245.

80. **Intra-Uterine Fractures.**—In the case described the child screamed incessantly after its spontaneous birth, and palpation and radiograms confirmed the fractures of all the long bones, clavicles and ribs. On lifting the child it felt like a bag of cloth filled with pieces of glass. The fractures were easily reduced and held in place with cardboard splints. Roentgenography the tenth day showed consolidation of nearly all the fractures, with callus, and no crepitation could be felt anywhere. A few weeks later green diarrhea developed and the child died in two weeks. The parents and three other children are healthy. Whatever may be the explanation of these multiple fractures, a tendency to rachitis evidently cooperates.

Archivos Españoles de Enf. del Ap. Digestivo, Madrid

May, 1918, **1,** No. 5

81 *Gallstone Empyema of Gallbladder. G. del Real.—p. 195.
82 Roentgen Examination of Stomach. Julian and S. Ratera.—p. 199.
83 *Habitual Constipation. V. de Castro.—p. 212.
84 Physiotherapy of Gastric Ulcer. S. Carro.—p. 214.

81. **Empyema of Gallbladder.**—The special features of the case described in a man of 56, a teacher, were that he had always been in excellent health, free from pains and tendency to jaundice, when suddenly he developed intermittent fever for a month, with two chills. The fever then subsided but left lassitude and a feeling of oppression in the right abdomen, explained when a fistula developed and large numbers of gallstones and pus were evacuated. There had never been the slightest symptom from the cholelithiasis or reflex disturbance before. The treatment has been expectant to date, based on the fear of adhesions and the usual tendency to spontaneous healing.

83. See Abstract 112 below.

Boletin de la Asociacion Medica, Porto Rico

June, 1918, **14,** No. 119

85 Aerotherapy in Whooping Cough. F. del V. Atiles.—p. 218.
86 Leprosy. M. M. Rosello.—p. 220.
87 *Obstetric Lacerations. J. S. Belaval.—p. 230.
88 *Plastic Operation on Urethra. M. Janer.—p. 234.
89 *Prophylaxis of Dengue. L. Figueroa.—p. 235.

87. **Obstetric Lacerations.**—Belaval remarks that about 60 per cent. of the parturients in Porto Rico suffer from lacerations during childbirth. In many of these cases the carelessness or ignorance of the midwives is responsible. He protests parenthetically against allowing untrained midwives to deliver women. The laws are exceptionally lenient for midwives, not exacting preliminary training, as with nurses. These untrained midwives know scarcely the rudiments of asepsis and antisepsis, and they are incapable of recognizing the serious complications of childbirth, or if they recognize them, they conceal them from the family, fearing that they will be blamed.

The birth canal should be carefully investigated for lacerations, and they should be sutured at once, he declares, while waiting for the expulsion of the after-birth. He sutures the tissues at points where this can be done without interfering with the third stage of labor, and takes stitches at the other points but leaves the ends hanging loose until the third stage is completed. Then he draws up the threads and ties them after expulsion of the after-birth. Catgut chromicized for twenty days usually holds long enough for healing in the deeper sutures. Silkworm gut is better for the outer sutures. The obstetrician should always go prepared for suture of the perineum.

88. **Urethroplasty.**—In a case of gonorrheal stenosis of the urethra, with extensive loss of substance from the gangrene entailed by the three days' retention of urine above the stricture, Janer repaired the 2-inch gap in the urethra with the scrotal septum. The catheter was left in place for two weeks, and the urethral passage was restored to approximately normal, the man urinating freely and without effort for the first time in eight years.

89. **Prophylaxis of Dengue.**—Figueroa mentions that epidemics of dengue have been known to die out when mosquitoes were excluded from the homes affected. He adds that the disease is not known in the mountains.

Brazil-Medico, Rio de Janeiro

Jan. 5, 1918, **32,** No. 1

90 Cadaveric Fauna: Brazilian Ants. O. Freire.—p. 1.

June 15, 1918, **32,** No. 24

91 Research on Brazilian Mycoses. O. Magalhães.—p. 185.

Medicina Ibera, Madrid

May 11, 1918, **3,** No. 27

92 *Popliteal Aneurysm. J. Blanc.—p. 158.
93 Iodin in Therapeutics. III. A. S. Alvarez.—p. 160.
94 *Early Syphilitic Meningitis. M. F. Criado.—p. 162.

May 18, 1918, **3,** No. 28

95 *Management of Heart Insufficiency. S. A. Echevarria.—p. 187.
96 Hypnotism in Hysteria. J. C. Galicia.—p. 189.

92. **Popliteal Aneurysm.**—Blanc excised the stretch of the vein involved as the aneurysm was inflamed. Smooth recovery followed although no attempt was made to suture the stumps, Nature having already provided for the circulation by this time.

94. **Early Fatal Syphilitic Meningitis.**—The patient was a widow of 36 and—from fear of disgrace—no treatment had been taken for the syphilis contracted a year before. Then meningitis developed, speedily fatal. Intense and persisting headache, worse at night, was the first symptom. The case resembled the meningitis of inherited syphilis more than the usual acquired meningitis.

95. **Heart Weakness.**—Echevarria discusses the management of attacks of cardiac insufficiency. He reiterates that his experience has amply confirmed the advantages of chronic and intermittent administration of digitalis in small doses in cases displaying a tendency to recurring attacks of cardiac insufficiency, either from the nature of the heart disease or extraneous circumstances liable to bring on attacks.

Prensa Medica Argentina, Buenos Aires

May 20, 1916, **4,** No. 35

97 *Mouth Breathing as Factor in Tuberculosis. E. V. Segura.—p. 515. J. J. Viton.—p. 517.
98 *Nystagmography. R. Argañaraz.—p. 518.
99 *Tuberculous Abscess in Thorax. N. Tagliavacche.—p. 526.
100 Ideals for Teaching Obstetrics. Liberatio.—p. 528. Conclusion.

97. **Inadequate Nose Breathing as Factor in Tuberculosis.**—Segura expatiates on the predisposing influence to tuberculosis of inadequate respiration through the nose. He regards this as one of the principal causes favoring the development of tuberculosis. He tabulates the findings in this respect in 500 tuberculous persons; fully 45 per cent. had more or less obstruction in the nose impeding normal nose breathing. The proportion was 98 per cent. among 19 boys under 13 and 50 per cent. in 20 girls. In the total 245 males, 38 per cent. were unable to breathe freely through the nose, and 48 per cent. of 255 female tuberculous. He gives figures also showing the improvement in the blood picture after the nose had been rendered freely permeable. Physicians in general and especially medical school inspectors should be on the alert to detect and correct inadequate nose breathing.

97. **Importance of Permeability of the Nose in Treatment of Pulmonary Tuberculosis.**—Viton reenforces Segura's plea for unobstructed nose breathing as an important element in warding off and curing tuberculosis. He ascribes great causal importance to the breathing into the lungs of dust and dirt in mouth breathing, in addition to the deficient oxygenation of the blood, and the lack of the humidifying action of the nose on the inspired air. The fact that the right apex is more frequently affected testifies further to the injury from the unmodified air. In 81.5 per cent. of his male tuberculous hospital patients and in 81.3 per cent. of the female, the tuberculous lesions were on the right side. He suggests the possibility that tuberculosis may be the primal cause of adenoids, and they set up a vicious circle. The adenoids may be a distant manifestation of latent or disguised tuberculosis in glands or viscera, or other infections or chronic intoxication may be responsible for the development of the adenoids.

98. **Recording the Movements of Nystagmus.**—Argañaraz' comprehensive study of the different forms of nystagmus is illustrated, including his description of his modification of Buys' nystagmograph; the movements of each eye are recorded separately on a moving drum. He describes other methods of recording the nystagmic movements, with experiments on rabbits, specifying the different forms of nystagmus, and citing considerable literature on the subject.

99. **Tuberculous Abscesses in the Ribs and Costal Cartilages.**—Tagliavacche reports two cases of a tuberculous lesion in a rib or costal cartilage or both. It was removed by Mercade's technic in each case, apparently eradicating the tuberculosis.

Repertorio de Medicina y Cirugia, Bogota

March, 1918, **9.** No. 6

101 *Cancer of the Jaw in Colombia. P. Martinez.—p. 289.
102 Nitrous Oxid Anesthesia. J. Lopez.—p. 323.

May, 1918, **9.** No. 8

103 Salvarsanized Serum in Syphilis. J. I. Uribe.—p. 407.
104 *Case of Intermittent Paraplegia. C. Torres.—p. 416.
105 Amebic Colitis and Dysentery. C. J. Lezaca.—p. 440.

101. **Malignant Tumors of the Jaws.**—The twenty-eight illustrations accompanying Martinez' article show a remarkable series of cancers of the jaws and cheek. Malignant disease, he states, is common in Colombia, and the cancer is too far advanced for operative measures, as a rule, when the surgeon is consulted. Even if an operation is attempted for these advanced cancers of the jaw, recurrence is frequent. With malignant disease of the jaw, possibly more than elsewhere, successful treatment depends on an early diagnosis, and physicians should be on the alert to detect tumors of this kind in their incipiency. He reports apparently complete cures in some cases of sarcomatous epulis in which he resected the alveolar edge of the jaw after removal of the tumor. In a case of fibrous epulis in a woman of 40, cauterization of the site after removal of the tumor seemed to answer the purpose sufficiently. In his jaw sarcoma cases were two boys of 9 and 11 and a babe of 4 months. The lower jaw is affected more often than the upper jaw. The boy of 11 seems to be cured during the months since removal of a large sarcoma on the upper jaw. One man's chondromyxosarcoma extended from orbit to neck and was as large as his own head. The entire left half of the lower jaw was resected with the tumor. Recurrence of a malignant tumor in the jaw generally occurs at the original site, confirming the necessity for extensive resection. One of the illustrations shows a case of actinomycosis simulating a large tumor of the upper jaw in a child. The carcinoma patients were all older than the sarcoma cases. With cancer in the antrum, pain is long the only symptom, no signs of a tumor being apparent, but when it breaks through the walls, progress is rapid. The outlook is graver with carcinoma than with sarcoma; a history of traumatism is more often encountered with the latter.

104. **Intermittent Paraplegia.**—Torres' patient is a boy of 10 who has sudden attacks of paraplegia lasting from a few minutes to three hours and a half. The child falls as his legs give way, but he has no headache. He has no pathologic antecedents except pneumonia several years before, followed by bilateral otitis media and symptoms of meningism that subsided after lumbar puncture. There is nothing to suggest hysteria or a spinal cord affection. The skin tuberculin test is positive, and by exclusion Torres accepts as the presumptive diagnosis a tuberculoma or other tuberculous lesion as responsible for the pressure inducing the intermittent paraplegia. The boy is intelligent and in good physical condition otherwise. The treatment advised is absolute rest for the brain with sun baths and food rich in animal proteins, and tonics.

Revista Medico-Cirurgica do Brazil, Rio de Janeiro

February, 1918, **26.** No. 2

106 *The Anti-Hookworm Campaign. C. Seidl.—p. 45. L. Hackett.—p. 52.
107 Mosquitoes and the Public Health. M. de Abreu.—p. 58.

April, 1918, **26.** No. 4

108 Linear Dermatitis. O. de O. Chaves.—p. 141.
109 *Venereal Disease in Brazil. C. Seidl.—p. 151.
110 Tropical Dysentery. E. Gomes.—p. 157.
111 Criminal Abortions. F. Magalhães and O. da Fonseca.—p. 161.

106. **The Hookworm Campaign.**—The addresses are given that were presented at the inauguration of the work of the Rockefeller Foundation in Brazil.

109. **Venereal Disease in Brazil.**—This article is the address made by Seidl at the International Public Health Conference held at Paris in 1914. His figures show that the direct mortality from syphilis at Rio had increased from 7.99 to 20.31 per hundred thousand inhabitants in the preceding twenty years.

Revista de Medicina y Cirugia Practicas, Madrid

June 7, 1918, **120.** No. 1509

112 *Habitual Constipation. S. V. De Castro.—p. 257.
113 Tonsillitis during Menstruation. A. M. Calderin.—p. 259.

June 14, 1918, **120.** No. 1510

114 Suppuration with Fecal Fistula Ten Years after Buried Wire Suture. Slocker.—p. 289.
115 *Typhus in Oporto. A. Barradas.—p. 298.

112. **Constipation.**—De Castro insists that each digestion is intended to be accompanied by defecation, so that a single passage a day indicates in itself a certain amount of paresis of the bowel and some autointoxication. "A glass of cold water sipped as the sun is rising utilizes the reflexes—including the peristaltic movements of the bowels—which the rising of the sun induces in the healthy organism." He advises setting an alarm clock to wake one in time for the sunrise, to take advantage of this moment of positive sideral influence. Habitual constipation can usually be cured in a month when the diet is restricted mainly to vegetables and fruits, with little to cause toxic action. "Paraffin and similar preparations have only a palliative action, and it is preposterous to think of taking them all the rest of one's life."

115. **Typhus in Portugal.**—Barradas remarks that there have been no cases of typhus among Portuguese soldiers in France or in Africa. The mortality in the recent epidemic at Oporto was low, only 6 per cent., and the fatal cases were mostly in the elderly. Only one of the children affected died. But seven contracted the disease of the twenty-five persons connected with the public health service, and one died. Two physicians were also affected. The symptoms on the part of the heart predominated in the clinical picture, and ataxia of

lips and tongue was a characteristic and early sign of the disease. Deafness was constant in all the moderately severe cases; in two there was inflammation of the eustachian tube. He advocates introducing a menthol and boric acid salve into the nostrils. Cough was rare and none of his 100 patients developed bronchitis.

In convalescence, bradycardia was the rule, and the patients were strictly warned against their natural tendency to abrupt movements as liable to bring on heart failure. He kept all the patients for two weeks of convalescence. The onset and the convalescence of typhus both suggest grippal influenza. The textbooks speak of myocarditis as a complication of typhus, but in his hospital service it was the constant and predominant feature of the disease from the first day of the onset to the last day of the convalescence. Nephritis is rare. He ascribes the low mortality—less than 10 per cent.—in the hospital to the systematic use of heart tonics, camphorated oil, spartein, alone or combined with strychnin or caffein, and, in the cases threatening heart failure, intravenous injection of strophanthin, 0.0001 gm. from one to four times a day. Saline infusion with a little epinephrin is the main reliance against the infection; camphorated oil combats the infection besides its tonic action on the heart. With intense headache or delirium, withdrawal of 20 c.c. of spinal fluid generally gave good results. In Portugal, typhus might be called "fisher's typhus," as the epidemics in Portugal always begin in fishermen's homes.

Semana Medica, Buenos Aires

April 11, 1918, **25,** No. 15

116 *Cholelithiasis. A. Althabe and E. Nicholson.—p. 393.
117 *Proposed Legislation on Prostitution. A. M. Gimenez.—p. 407.
118 *Prophylaxis of Tuberculosis. E. R. Coni.—p. 418.
119 *Diabetes Insipidus in Infant. F. A. Deluca.—p. 422.
120 Yoghurt. E. Fynn.—p. 425.
121 Sulphur in Biology. J. de R. Pailhade.—p. 427.

116. **Gallstones.**—In their experience with 240 operative cases of gallstones, Althabe and Nicholson remarked the preponderance of cholelithiasis in women, and the age between 25 and 30. Fully 89 per cent. of the women had borne children, thirteen had had from thirteen to nineteen pregnancies, and in 36 per cent. the first disturbances had been noticed during a pregnancy. The phenomena observed confirm that hypercholesterolemia is a constant factor in cholelithiasis, in women, at least. This cholesterolemic diathesis seems to be enormously exaggerated during the genital life of women.

117. **Regulation of Prostitution.**—Gimenez reproduces a bill presented recently in the Chamber of Deputies, and discusses legal measures for repression of commercialized vice.

118. **Municipal Decree for Prophylaxis of Tuberculosis.**—Coni relates that the decree in question has been in force for sixteen years and he reviews its operation. As long ago as 1872 the city council ordered that in every case of contagious disease the neighbors should notify the authorities. In 1902 a decree was issued imposing, under penalty, on the owner, tenant or occupant of a building or part of building the declaration to the city health bureau of every case of pulmonary tuberculosis. The twenty-seven paragraphs of the decree provide for disinfection of rooms, vehicles, cars, etc., with prohibition of spitting on the floor, etc. Many of the provisions have not been effectually enforced, but the effect of the whole decree—which in its day was far beyond anything adopted elsewhere—has been a most valuable factor in the customs and training in hygiene not only in the home country, but in other countries. The decree was of such advanced import that it was cited in the press of the leading countries in Europe and America.

119. **Diabetes Insipidus in Infant.**—The male infant was 3 months old when the essential polyuria first attracted attention. He is now 3 years old and weighs 11 kg. He drinks about 4 liters a day and voids an equal quantity of urine.

Siglo Medico, Madrid

June 1, 1918, **65,** No. 3364

122 Influenza or Dengue? C. M. Cortezo.—p. 422.
123 Criminal Responsibility in the Young. J. Canseco.—p. 426.
124 Erythrodermias. Sicilia.—p. 428.

June 8, 1918, **65,** No. 3365

125 Gangrene after Injection of Tincture of Iodin in a Hydrocele. A. P. Martin.—p. 442.
126 Treatment of Tuberculids. Sicilia.—p. 444.

Nederlandsch Tijdschrift voor Geneeskunde, Amsterdam

May 18, 1918, **1,** No. 20

127 *Morphin Tenesmus. E. C. Van Leersum.—p. 1374.
128 Pseudo-Crystallization Process of Fibrin. E. Hekma.—p. 1386.
129 *Open Puncture of the Pleura. W. Hoogslag.—p. 1393.
130 *Tests for Sugar. P. H. Kramer.—p. 1395.
131 *Congenital Heart Defect. J. Van Tilburg.—p. 1397.

May 25, 1918, **1,** No. 21

132 *Multiple Psychogenous Erosions. K. Edel.—p. 1433.
133 *Comparative Mortality of the Sexes. J. P. H. Kroon.—p. 1442.
134 Scabies. R. A. Reddingius.—p. 1451.
135 Proposed State Supervision of Hospitals. D. Schermers.—p. 1453.
136 *Loss of Greater Omentum. T. J. Jaski.—p. 1455.

127. **The Morphin Mouse-Tail Reaction.**—Van Leersum has confirmed in rats and mice the communications of Herrmann and Straub in regard to the stiffening of the tail which follows a small dose of morphin given to these animals. He has found further that the same reaction is observed with a number of other substances which have nothing else in common with morphin. He reports research on various animals. The morphin or its equivalent acts on the medulla oblongata, and the impulse is transmitted by the pelvic nerves, inducing intense tenesmus of the anus and bladder sphincters.

129. **Open Puncture in Pleurisy.**—Hoogslag has never observed any untoward by-effects when he tapped the effusion in pleurisy and after evacuation of the fluid allowed air to enter the pleura through the open trocar. He has treated forty patients with this open puncture, and the disease was often shortened while thick adhesions seldom formed. The tendency to recurrence seems to be checked by the air in the pleura. The puncture is made at the lowest point as the patient lies on that side, and 2 liters or even 3½ liters were thus easily withdrawn in some cases. One Italian surgeon has applied this open puncture in 207 cases and lauds its advantages over other methods. Others have applied it with benefit in pericarditis with effusion. A trocar is used about 8 cm. long by 0.4 cm. in diameter. When all the fluid has escaped, the trocar is withdrawn during the deepest possible expiration, preferably during a cough, which expels some of the air. The patient lies on the side affected, close to the edge of the bed or, better yet, lies across two bedsteads just far enough apart for the surgeon to stand between them. Hoogslag regards this as the simplest and most rational method for evacuation of a pleural effusion.

130. **Acetylsalicylic Acid Modifies Reaction for Sugar.**—Kramer reports the case of a physician whose urine responded positively to tests for sugar besides showing albumin, tube casts and blood corpuscles. The physician had been in a very nervous condition for some time and had been taking acetylsalicylic acid freely. Kramer examined also the urine of thirty soldiers who had been given 2 to 4 gm. of the same drug during the day. The urine in all responded positively to the Trommer test for sugar. He has not found any reference in the textbooks to this source of possible error in testing the urine, but Pinkhof has reported the casual discovery of similar findings.

131. **Congenital Heart Defect.**—Van Tilburg has been unable to find in the literature a case like the one he describes. The previously healthy young woman with patent ductus Botalli developed pulmonary tuberculosis, fatal in two years. The puzzling auscultation findings were explained by a thrombus obstructing the open duct and hanging loose in the pulmonary artery.

132. **Multiple Psychogenous Skin Defects.**—Edel's patient is a boy of 13 well developed physically but rather backward in his studies. The family is inclined to be neuropathic and the father had syphilis, well treated. For six months the boy has been having oval spots, like erosions, develop on the skin. There is first a smarting or burning and then in a few minutes the oval patch appears. Emotions, fear, anger seem to be the provocative cause of their appearance, and Edel was able

to induce the appearance of a spot of the kind by suggestion, applying the electric current or an ethyl chlorid spray lightly to a given area, and then telling the boy that the procedure was repeated with great intensity, when in fact the current or the spray was not turned on the second time. The limb was then dressed with a plaster bandage, but the "spot" developed under the bandage. This occurred twice, but following tests did not succeed. The boy was cured by a course of tepid to cold douches. No further spots developed after this except two one day when he was startled by a cannon being fired unexpectedly near him. The success of treatment confirmed the psychogenous origin of this skin trouble which may be classed as an angioneurotic diffuse erosive dermatitis.

133. **Comparative Mortality of the Sexes.**—This is Kroon's second study of this subject; the other was reviewed in these columns, Aug. 4, 1917, p. 416. Among the points brought out by his statistics is that the female death rate—both of the married and the unmarried—in the cities is lower not only than that of men but is lower than the mortality of women in the rural districts and smaller towns. He cites statistics from Prussia and Moscow which show this same lesser mortality of city women, and states that further study of the questions involved is necessary before they can be answered. He rejects the assumption that women are naturally more resistant than men.

136. **Loss of Greater Omentum.**—The man in an attempt to commit suicide had slashed his abdomen with glass, and a piece of the greater omentum, about 15 sq. cm., escaped from the abdominal wound and was found on the floor later. He recovered, and a year afterward was still in good condition.

Ugeskrift for Læger, Copenhagen

June 13, 1918, **80,** No. 24

137 *Duodenal Feeding of Infants. P. Hertz.—p. 943.
138 *Winter Bathing. E. E. Faber.—p. 949.
139 Ulceration and Eczema from Contact with Norwegian Fertilizer. V. Erlendsson.—p. 954. C. Jensen.—p. 955.

137. **Duodenal Catheterization for Infants.**—Hertz reports experiences which confirm that it is almost always easy to pass a tube into the duodenum of a normal young infant. In the last eighteen months he has applied this measure in treatment of eight infants with stenosis of the pylorus. In every case he was able to pass a Nélaton catheter, No. 18 or 19, through the pylorus into the duodenum although the stenosis was causing severe symptoms. To make sure that the catheter was in the pylorus, he examined a few drops of fluid obtained through the catheter. The reaction of the fluid is instructive, but in one case the mother's milk gave an alkaline reaction which might have proved misleading. It is sometimes possible to feel the catheter through the abdominal walls. When it rolls up in the stomach it can sometimes be palpated, to the left of the median line. The fact that the child does not vomit the food poured through the catheter testifies that it is in the duodenum when the child has been vomiting incessantly before.

In his eight cases he fed the babe 75 gm. of drawn breast milk twice a day after the stomach had been rinsed clean. Five other feedings were given in the ordinary way, breast milk when possible. The children were from 1 to 6 weeks old, and the stenosis had developed suddenly from a few days to three weeks before, and it lasted from three and a half to nine weeks in all. It averaged only six weeks, while the average in the cases without the duodenal catheter was nine or ten and a half weeks. The catheterization of the pylorus for fifteen or twenty minutes a day evidently contributed in reducing the tendency to spasmodic contraction, as the period of constant loss in weight was much shorter than in the other cases. When the child ceases to lose further in weight and does not vomit more than once or twice a day, then it begins to improve at once.

No untoward by-effects from the catheterization were observed in any instance. Bleeding from the stomach does not contraindicate it, and the supply of nourishment is the best means to combat this hemorrhagic tendency. No occult blood was found in the stools, which confirmed the lack of injury from the catheter. In a recent case of congenital stenosis of the pylorus with severe edema and glycosuria, necropsy showed the duodenum natural in every respect with nothing to indicate dilatation or irritation although the duodenal catheter had been used daily for several days. This measure is not a cure for stenosis of the pylorus, but applied with other measures it effectually combats its injurious effects. Catheterization is likewise a valuable aid in incessant vomiting from other causes, as in his two cases of pyonephrosis with stricture in both ureters, and also in cases of acute gastro-enteritis in which the stomach was so sensitive that not even water was retained. He gave these infants 150 c.c. of water through the duodenal catheter once or twice a day, in addition to subcutaneous saline infusion. This promoted diuresis and aided in the throwing off of the toxins and speedy recovery.

138. **River and Lake Bathing in Winter.**—Faber found albumin and casts in the urine of men after a fifty seconds swimming match in winter. But they promptly disappeared, and he regards them as the manifestation of a transient disturbance in the circulation from the cold water. He has investigated conditions also in sixty-five men and five women, from 27 to 65 years old, who are accustomed to out-of-door bathing in winter, staying in the water only from eight to forty-two seconds. All are enthusiastic on the bracing effect of the cold dip, and ascribe their freedom from colds, rheumatism, etc., to this cause. One said that eczema which had resisted specialist treatment for years subsided under these cold baths; another reported the same in regard to a seven-year fistula. One man said he had started the bathing because he always froze in winter, and it had cured him of this sensitiveness to cold. All the winter bathers examined said that vigorous exercise before and after the bathing was felt to be necessary. Faber adds that the hot baths of the Japanese, electric light baths, etc., have the same action, the inducing of a lasting hyperemia in the skin, improving its function.

Upsala Läkareförenings Förhandlingar

April 18, 1918, **23,** No. 3-4

140 *Operation for Anuria from Calculi; Two Cases. E. Utterström.—p. 117.
141 *Ferment Action on Succinic Acid. E. M. P. Widmark.—p. 134.
142 *Protein Requirements. G. F. Göthlin.—p. 159.
143 *Parathyroid Glands in Rabbits. A. Bjure.—p. 175.

140. **Operative Treatment of Anuria.**—In one of Utterström's two cases the anuria developed suddenly about a year after one kidney had been removed on account of injury from the numerous calculi it contained. When the anuria had lasted for five days, nephrotomy and decapsulation were done and the anuria subsided although the kidney pelvis contained pus under high pressure. The man is in good health still, four years since the intervention. In the second case the anuria was evidently a reflex phenomenon from the presence of a stone as large as a cherry in the left kidney. After decapsulation and nephrotomy of this kidney, the other kidney resumed functioning. The cases of stone formation in a single kidney are rare; he summarizes all that he had found in the literature.

141. **Ferment Action and Succinic Acid.** — Widmark describes research on succino-dehydrogenases in connection with enzyme action.

142. **Protein Requirements.**—Göthlin presents arguments to show that with a known calory requirement it is possible to determine the albumin ration as biologically equivalent to an amount of milk albumin representing 8.8 per cent. of the gross calory needs. This is the proportion of albumin which his and others' research has shown in breast milk. He remarks that this is a hitherto overlooked means of estimating the protein requirement of both infants and adults, and he cites numerous authorities to show the feasibility of the method, and the correctness of the figure he accepts, namely, 8.8 per cent.

143. **Parathyroid Glands in Rabbits.**—Bjure's report of his study of the parathyroids from 125 rabbits fills fifty-four pages. The main object was to determine the changes induced by age in these glands. Two plates accompany the article.